[From Franciscus Vallesius: Hippocrates, Coloniae, 1589.]

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CARL VON VOIT, MASTER AND FRIEND*

By GRAHAM LUSK

NEW YORK

IT is with a certain amount of hesitation that I undertake to describe the influence of Carl Voit and of the German environment of the period about 1890 upon a young American like myself, for the material may be thought to be of too personal a nature to merit recording. Still, I feel that I am old enough to attempt its portrayal without being charged with an undue measure of presumption or conceit.

My father was in Heidelberg in 1859 and in Berlin in 1860. He expected to take an M.D. degree in Berlin in another year, but at the call of Lincoln, volunteered and went home to fight in the Civil War. After graduation in medicine at the Bellevue Hospital Medical College he married and went abroad, studying at Edinburgh, Paris, and Vienna. On his return he taught physiology at the Long Island Medical College, and in 1870–71, on the invitation of Oliver Wendell Holmes, he gave a course of lectures at the Harvard Medical School, in which experimental demonstrations were given for the first time in Boston.[1] Oliver Wendell Holmes attended all the lectures and sat in the front row.

At a dinner held in Washington in 1897, at which I sat between Chittenden and Meltzer, my father exchanged seats with me and said to them that the success of his book, "The Science and Art of Midwifery," was due to the fact that in it the processes of labor for the first time in the English language were described in terms of the physiological background.

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[1] Lusk, W. T. *Boston Med. & Surg. J.*, 167: 921, 1913.

* A paper read before the Alpha Omega Alpha Fraternity of the Harvard Medical School on May 8, 1930, and before the Yale Medical Society on December 10 of the same year. Its publication nearly coincides with the centenary of Voit's birth, October 31, 1831.

When I was sixteen I spent fifteen months in Europe with Dr. William H. Flint who was then in ill health. We traveled during a summer, spent the winter at Lausanne in French Switzerland, the spring in travel in Italy and Greece, and the the following summer at Bonn, on the Rhine. At Bonn we lived with the Bleibtreu family, in which the young men were preparing to study medicine. Both Max and Leopold Bleibtreu subsequently became assistants in physiology to Pflüger.

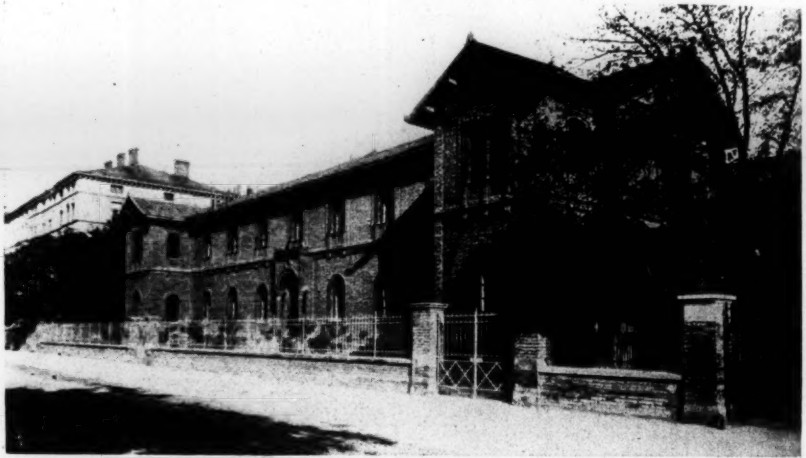


Fig. 1. The Physiological Institute in Munich, Built in 1855, and Occupied in That Year by Harless, Professor of Physiology, by Bischoff, Professor of Anatomy and Physiology, and by Pettenkofer, Professor of Medical Chemistry. Voit Became Assistant and *Privat-dozent* in the Institute in 1856 When Twenty-five Years of Age, Was Made *Ausser-ordentlicher* Professor in 1859 and *Ordentlicher* Professor and Director of the Institute in 1863, When He Succeeded to the Chair of Physiology After the Death of Harless. In 1857 Voit Published "Der Kreislauf des Stickstoffs im Tierischen Organismus," in 1860 Bischoff and Voit Published "Die Ernährung des Fleischfressers," and between 1863 and 1869 Pettenkofer and Voit Published Their Work with the Celebrated Respiration Apparatus. The Basic Work of These Contributions Was All Done Within This Building, and Here Rubner Laid the Foundations for His Career.

It was a quiet and beautiful time on the Rhine in those summer days of 1883. There were then no factory chimneys to besmirch the landscape, though a German millionaire had built a modern abode near the Drachenfels and was in the process of filling his library with agricultural reports bound in full morocco.

On my return home I spent four profitable years at the School of Mines, Columbia University. My father planned that I should learn chemistry and afterward acquire in Germany a sufficient knowledge of physiological chemistry to give me a broader background than that possessed by the teachers of medical chemistry of the day. He advised me not to waste time taking a medical degree, which my deafness would render me incapable of using in practice.

So, like Chittenden a few years earlier, I resolved to go to Hoppe-Seyler, in Strassburg, to study physiological chemistry, and like him I studied elsewhere. My best friend among my classmates was William Jay Schieffelin, and he was going to Munich to study under Baeyer, the successor of Liebig, so I decided to go to Munich for a year, where I could settle down to preliminary work and to learn the language. I had never heard of Voit until von Winckel, the obstetrician of Munich, who had been entertained by my father in America, gave me a card of introduction to him. It was therefore a pure piece of luck that I became a pupil of Voit. I never saw Hoppe-Seyler in my life.

My first interview with Voit was disappointing. I could not enter his laboratory for a year. I must first hear his lectures, take his practical course (in which a dozen students stood up for two hours and watched the professor make experiments), and take anatomy under Rüdinger and histology under Kupfer. This was quite as it should have been, though it was hard for me to realize it at the time.

Voit's lectures were a delight to me. He read them from a text. If he wished to interpolate matter there was no change in the smoothness of delivery; he spoke as though the new ideas were being read from manuscript. He was very short-sighted and only on rare occasions raised his eyes from his manuscript. This happened if he heard a noise in the room; he stopped, glared at his audience, his eyes flashed fire, a few enraged words followed, and then the lecture went on as peacefully as though nothing had happened. The class never forgot the lesson; it knew its master. True to the German form, the presentation of the scientific facts was always preceded by a short description of the historical development of the subject. A simple example will suffice. Frerichs had shown that, by blowing the breath on a glass rod dipped in hydrochloric acid, a cloud of visible vapor was produced, indicating that expired air

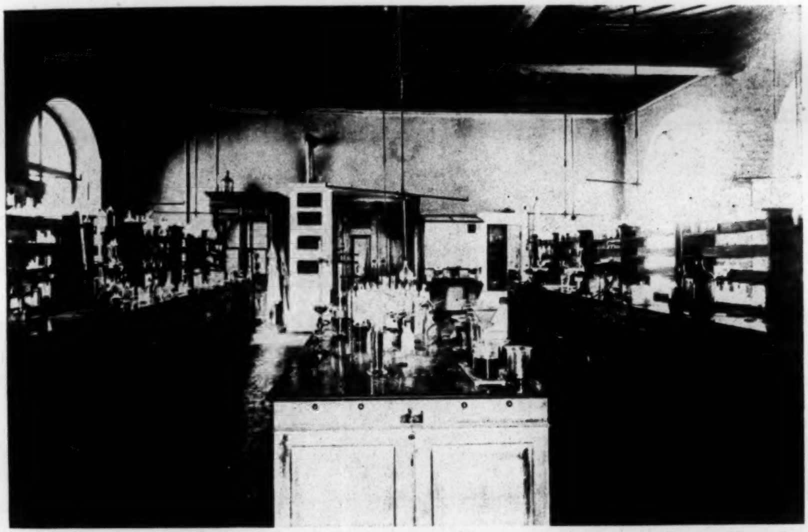


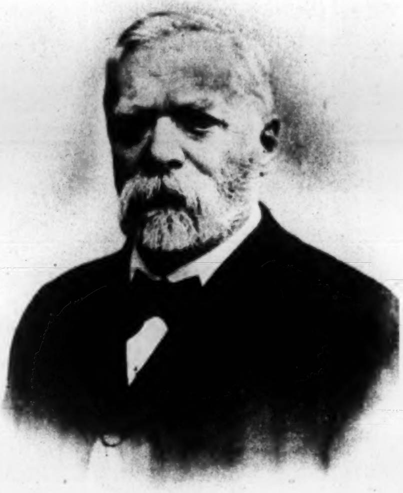
FIG. 2. THE CHEMICAL LABORATORY OF THE PHYSIOLOGICAL INSTITUTE. AMONG THE PUPILS HERE INSTRUCTED MAY BE MENTIONED IN APPROXIMATELY THE CHRONOLOGICAL ORDER OF THEIR APPEARANCE: FR. HOFMANN, J. FORSTER, J. BAUER, H. V. BOECK, L. FEDER, E. VOIT, M. RUBNER, M. GRUBER, FR. V. MÜLLER, W. O. ATWATER, W. PRAUSNITZ, F. MORITZ, A. C. ABBOTT, G. LUSK, TSUBOI, MAX CREMER, F. VOIT (A SON), A. ELLINGER, O. FRANK, W. STRAUB, E. WEINLAND, Y. HENDERSON, E. P. CATHCART, E. J. LESSER, MAX VOIT (A NEPHEW). THE APPEARANCE OF THIS LABORATORY IS TODAY VERY LITTLE CHANGED.

was rich in ammonia. Then, after the invention of Nessler's solution, air expired through it produced a red precipitate. But this result was due to the neutralization of Nessler's solution by carbonic acid. Then potash was interposed and still a copious reaction for ammonia was obtained. But the potash contained ammonia. When a rabbit was made to expire air which passed first through pure potassium hydrate in solution and then through Nessler's solution, traces of ammonia were obtained in six hours. However, this was due to the decay of the animal's teeth, for if the animal breathed through a tracheal cannula under the foregoing conditions not a trace of ammonia could be detected in expired air. This had to do with the establishment of the law that the nitrogen in the food intake was equivalent to the sum of the nitrogen in the urine and feces. When I returned home it was part of my business to put a stop to the demonstration of Frerichs' experiment before students. It is obvious that fuming hydrochloric acid always fumes, no matter what current of air is blown upon it.

FIG. 3. VOIT AS A YOUNG *Privat-dozent.*

FIG. 4. VOIT IN MIDDLE LIFE. CONSIDERED BY MANY TO BE THE BEST PICTURE OF HIM.

The Munich of the day of which I speak was a simple old-fashioned German town. The first summer that I spent there I lived on the Karlstrasse, having taken a room above a beer hall at five dollars a month. The good Frau who rented the room gave me a roll without butter and a cup of coffee in the morning for five cents. When my friend, I. N. Phelps Stokes, the man who has written of New York City the most notable history of a city ever produced, joined me for a month, a second bed was put in the room and the cost was raised by five marks a month. That made a rental charge for a furnished room of $3.10 apiece a month. Out of the window we could see the Munich cab drivers who patronized the beer tap below and who ate the same coarse rye bread which they fed to their horses.

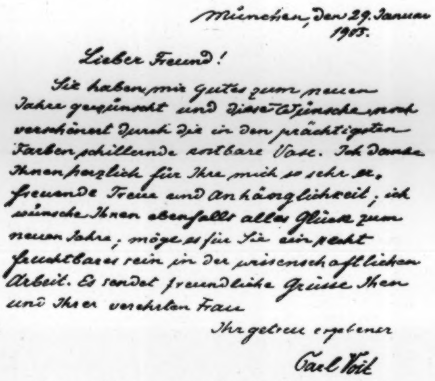


arl Voit

FIG. 5. VOIT AT THE AGE OF SEVENTY.

We went walking in the Tyrol together and, tired and hungry, stopped at a farmhouse for refreshment. My friend had all the bread, butter, cheese, and milk he wanted, and I the same, except that I took beer instead of milk. I gave the peasant farmer twenty-five cents. I was distressed that he did not say "Thank you." He returned and handed me fifteen cents in change.

The opera, which had been the home of Wagner and was patronized by royalty, offered admission to students and soldiers who wished to stand up for sixteen cents. I could live on $50 a month, but my average was $75 monthly. Dr. Karl Thomas tells me that a poor German student may still live on $50 a month in the town of Leipzig, including all expenses.



München, den 29. Januar
1905.

Lieber Freund!

Sie haben mir Gutes zum neuen Jahre gewünscht und diese Wünsche noch verschönert durch die in den prächtigsten Farben schillernde kostbare Vase. Ich danke Ihnen herzlich für Ihre mich so sehr erfreuende Treue und Anhänglichkeit; ich wünsche Ihnen ebenfalls alles Glück zum neuen Jahre; möge es für Sie ein recht fruchtbares sein in der wissenschaftlichen Arbeit. Es sendet freundliche Grüsse Ihnen und Ihrer verehrten Frau

Ihr getreu ergebener

Carl Voit

FIG. 6. SPECIMEN OF VOIT'S HANDWRITING.

FIG. 7. VOIT LECTURING. TAKEN SHORTLY BEFORE HIS DEATH BY ONE OF HIS STUDENTS.

Even forty years ago Americans were at once suspected of being millionaires, but they were not exploited as now.

I well remember the ceremony of moving from one lodging to another. A *Dienstman* brought a small hand cart. On this were placed my worldly goods, including my books and my beer mugs. A German student lamp with a green shade crowned the load.

While escorting this picturesque vehicle I met Mr. and Mrs. Henry Holt, old family friends, who had a hearty laugh over the scene. The cost of this form of transportation was established by law and was absurdly small.

Professor von Winckel was notably kind to me. I went to his home to dinner often on Sunday noon when the unmarried and married children and the grandchildren gathered around a bountiful table. They were all my good friends. I attended a large entertainment there. I got into a dispute with a German about the relative beauty of German and American women. "Ah," said he triumphantly, "the woman now entering is the most beautiful woman in the room. Have you any like her in America?" "She is an American," replied I. "Impossible," exploded the German. He turned to inquire of his neighbor and the argument stopped. It was Frau Hanfstengel, who had been a Miss Sedgwick, of Stockbridge, Massachusetts.

Early experience with a medical student who came to coach me in medical German taught me that bravery was not what counted in war. The Frenchman was superbly brave. It was the German *system* which mattered and which made Germans superior to all others. It was a time when Bismark ruled the proud and mighty German Empire and bade the *Reichstag* do his bidding in an address which ended with the words "Wir Deutsche fürchten Gott, sonst nichts in der Welt." But though this thrilled the country, the patient toil of the individuals who composed the population moved on evenly and undisturbed.

Munich, the Isar Athens, which had been the home of Liebig and Wagner, and was then the adopted home of Ibsen, Munich, with its *Frauenkirche*, its distant view of the snow-covered mountains of the Tyrol, its companionable people, this was the true soul of Germany to me, and I sought to understand it and be absorbed by it.

After a year of probation I entered Voit's laboratory, and in 1888 he gave me a problem on diabetes to investigate. Curiously enough, in 1871 in volume I of Maly's *Jahresbericht*, is recorded under the Index head Diabetes an abstract of an article by my father. So in each decennium for sixty years articles bearing the family name have appeared on this subject.

The professor having outlined the problem, his assistants gave me every necessary help. Herr Seidl, the town baker, prepared a batch of zwieback and then prepared crisp gluten bread which was free from carbohydrate. For the first period my daily diet consisted of coffee, steak, 500 grams of zwieback, butter, and with each of the two main meals a pint of wine. After three days the zwieback was replaced by an amount of gluten bread, the nitrogen content of which exactly corresponded to that in the discarded zwieback. The 500 grams of zwieback daily gave me the subjective sensation of having deposits of glycogen in the brain, whereas the gluten bread in its turn tasted like wall paper. Dropping the carbohydrate in the zwieback, but continuing the nitrogen intake at its previous level by ingesting gluten bread, led to a great increase in protein metabolism and demonstrated the protecting power of carbohydrate over such metabolism. The article concerned with this work was written entirely by Voit and appeared in the *Zeitschrift für Biologie* under my name. When I remonstrated and told Voit that his name should be there also he replied, "Da ist es—'Aus dem physiolgischen Institut zu München.'" Dr. Welch read the article at home and spoke to my father about it. I felt exalted.

At Columbia my instructors had been of two types, gentlemen who were good teachers who did not know very much, and rather rough people who knew a great deal. In Munich, for the first time in my life, I had found a teacher who represented a highly developed form of culture which was both intellectual and personal.

About this time I met the Professor and Frau von Voit at a ball at which they were presenting a young daughter. Frau von Voit said to me, "Mein Mann sagt Sie sind sehr fleissig, Herr Lusk." I heard this often; to say that one was diligent or industrious signified the highest praise. To say that to an American student would have meant then and would mean even more so today that he was a rather shabby person who actually had to work in order to learn something. I suppose this perversion of the German conception of learning was derived from the belief of Lessing and of Liebig that the development of talent depended upon work and will power. At any rate, in Voit's laboratory emphasis was always on work done. I remember well the time when I had practically concluded a piece of research on the subject of liver glycogen that the professor asked me to do a final experiment with a rabbit. I protested that I had arranged to begin to study for my doctor's degree and that I did not have time. His face broke into a smile and he said, "But an American is able to do anything." After that there was no question about doing what he wished.

The laboratory, with Wilhelm Prausnitz and Max Cremer as first and second assistants, was a happy friendly place. One day I burned my hand with ether. To relieve the pain a servant was sent to buy cocaine which cost $1.75. I offered to pay for it, but money was refused. I was told I had done so much for the state that state funds would care for me in this trouble. What had I done for the state? I had given sugars, including some levulose, at that time a rare sugar which I had prepared myself, to divers rabbits and had analyzed their livers for glycogen and their intestinal tracts for sugar. This was a new conception of service for the welfare of the state. It determined my attitude that qualified workers who would give their time to research should be given every laboratory aid humanly possible.

This was just before the time of Emil Fischer's work on the sugars, a time when a visit to the laboratory of Oscar Loew, in Munich, revealed a little man with a wild shock of hair, who was passing methyl alcohol, mixed with air, over a heated platinum spiral and converting the resulting formic aldehyde into a condensation product, a sweet tasting substance which he was vainly trying to crystallize. In truth, he had i-fructose, as Fischer demonstrated shortly after.

We felt that we were living in days of rewarding research. There must always be the thrill of this in every productive laboratory. When insulin was discovered one of my own students exclaimed regarding the glory of the time, which took me back to my thoughts in the old days in Munich.

Voit would at times come into the laboratory and engage in apparently violent disputation with his very mild mannered brother, Erwin Voit. "Nein, es ist unmöglich," "Nein, es kann nicht so sein" would resound through the laboratory. He never spoke with similar vigor to anyone else, but we all knew what his powers were in this direction.

Voit never attended scientific meetings or congresses except the meeting of the local scientific society, at which the members could take supper and at which all drank beer during the proceedings. Only through his *Zeitschrift für Biologie* did he rub shoulders with the world. Once shortly after a violent polemical dispute of his with Pflüger I happened to be in Bonn and met Pflüger through the influence of an American woman, the daughter of William Walter Phelps, one who had married Franz von Rothenberg, one of Bismark's lieutenants and who, retired, was then the financial agent of the Prussian government by whom the professors were paid. Pflüger appeared to me to be a German of the highest type and in many ways reminded me of Voit himself. He was willing to admit privately that sugar might arise from protein in metabolism, but in his literary productions in *Pflüger's Archiv* at the time he was violently against the proposition.

When I saw Voit a few days later he was dumbfounded to learn that Pflüger had received me, knowing whose pupil I was. He told me I had been in the lion's den. When I said that Pflüger would admit the possibility of the production of sugar from protein he replied that the lion would soon become tame.

Voit always manifested the greatest interest in a new discovery. The figures were "sehr schön," he would say. My colleague Jackson has poked fun at me for talking about "a perfectly beautiful experiment." I think this must be the unconscious translation of "ein sehr schöner Versuch," words so often used by Voit.

Voit, when I first knew him, was fifty-five years old, medium in size, keen-eyed, alert, with a quick walk, of quiet, dignified, courteous bearing. He knew that he was the founder of modern metabolism research, and yet he was in many ways as simple as a child, as simple as a German scholar of the old school, I might have said. After I had been in Munich three years he, in greeting my father, held out both his hands, exclaiming, "Und das ist der Papa." He invited me to dinner with the words, "We have said to one another we must have Herr Lusk meet us in the family, and you will come, will you not?" Of course I went. One of the daughters served the dinner. The first assistant in his laboratory had never been asked into his home. Later Mrs. Lusk and I were always invited to dine with the family whenever we went to Munich.

On one of my visits, when I was walking with him on what is now known as the *Pettenkoferstrasse*, the street on which the physiological institute is situated, I told him that Dr. Welch had told me that in his opinion the work of Voit was of greater permanent value than that of Hoppe-Seyler. He took me by the arm and said that when one of his assistants had tried to write a necrology of Hoppe-Seyler there was no work which could be cited except that on blood and bile pigments, which after all had originated with Virchow.

This was not quite just to Hoppe-Seyler, who founded the first real school of physiological chemistry and who numbered many eminent men, Baumann, Hofmeister, and Kossel, as examples, among his pupils.

The principles of Voit's life were absolute devotion to truth and to duty, as they appeared to him, and absolute accuracy in chemical analysis. Every one who worked in his laboratory was required to satisfy himself by personal experimentation that the results obtained for the total nitrogen in the urine, as measured by the old titration method of Liebig, were the same as those found by the method of Schneider-Seegen, and by the later method of Kjeldahl. We were to bear witness of the accuracy of Voit's nitrogen determinations from 1857 on, which had been done by the method which Liebig had taught him. *Genauigkeit* was the watchword of the laboratory.

Voit ruled the Munich faculty. His genius determined that Friedrich von Müller should become professor of medicine, and I have been told that he left his deathbed to demand of the faculty the election of Otto Frank as his successor. This visualizes the power of the German professor in his educational world.

I have a few old letters which I have translated and which illustrate better than my own words the causes of Voit's influence over me. There is constant emphasis on scientific work. At the time of the death of my father he wrote me as follows:

Munich, July 18, 1897.

Dear Colleague,

My family and I have a heartfelt part in the sad news of the death of your honored father. I know personally how great is the loss of the father and head of the family, and what a great change it brings in our lives. I trust that intellectual work, which is our greatest comforter in trouble, will overcome the sorrow.

I am delighted that you are continuing scientific work along the lines in which you began, and that you have achieved good results. It is of the greatest interest that you have found that protein metabolism increases so greatly in phlorhizin diabetes and have discovered that 60 per cent of sugar can be obtained from protein. In view of this it seems astonishing that Herr Pflüger will not admit that either sugar or fat can come from protein. Your article will soon appear in a coming number of the *Zeitschrift für Biologie*. We are now quite active in the laboratory. Dr. Cremer has with certainty established the deposition of fat from protein in the cat; Dr. Frank continues his experiments on fat absorption and on blood circulation. Others are working on the action of sodium chloride on protein metabolism, on the metabolism of small and large birds, on the influence of blood-letting on the metabolism, on intestinal ferments which convert milk sugar into lactic acid, on the coagulation of protein by heat under the influence of neutral salts and on the loss of weight by tissues, especially by bone during hunger. For a time it will continue thus, so long as I remain capable [*frisch*].

We hope that you will soon come to Munich again that we may greet you.

C. Voit.

At this time Voit was sixty-seven years of age. On the occasion of his seventieth birthday he wrote me a letter which has always been a treasured possession.

Munich, Sept. 26, 1901.

Dear Colleague,

You had the goodness and friendliness to remember my seventieth birthday by contributing to the marble bust given me by my pupils and also by writing a paper

"Ueber den Phlorhizindiabetes," for the *Festschrift* of the *Zeitschrift für Biologie* which was dedicated to me. It was a great pleasure for me that my old students, who since 1863 have grown to a great number, thus recognized my efforts and showed their devotion. You are one of my most faithful and most grateful pupils, and it gave me much pleasure to find you among those who participated. I have read with great interest your valuable contribution, especially your proof that sugar does not arise from fat in phlorhizin diabetes. From this I have again seen that you are independently capable of expanding the work which I began and of promoting science. I thank you affectionately for the love and the good which you have done me and I beg you furthermore to preserve your love for me.

Ihr getreuer alter Lehrer,
Carl Voit.

In failing health eighteen months later he writes as follows:

Meran, April 2, 1903.

Dear Colleague and Friend,

[Tells of the death of his daughter and says the world will never be the same.] At Christmas time I suffered from a severe gastrointestinal catarrh which greatly depressed me. I felt that I had reached old age and must give up my academic position, my laboratory and my lectures. But the work has gone on with the faithful help of Doctor Cremer and Doctor Frank. I hope to fully recover my health in Meran where I expect to remain several weeks longer.

We greatly hope that we will see you again in old Europe this summer. It will give us greatest pleasure to greet you and your wife once more. When one grows old one values more and more the attachment of the good friends one has made in life.

With friendly greeting to you and your dear wife from me and mine,

Ihr getreuer,
Carl Voit.

In a letter written after the New Year of 1905 he reiterates his interest in my scientific work.

Munich, January 29, 1905.

Dear Friend,

You have wished me a happy New Year and have emphasized these wishes by sending me a beautiful vase. I thank you greatly for the pleasure that your trust and attachment give me. I wish you likewise all happiness for the New Year. May it be richly profitable for you in your scientific work.

Ihr getreu ergebener,
Carl Voit.

When I dedicated my book on nutrition to him he wrote me this letter:

Munich, December 6, 1906.

Honored Colleague and dear Friend,

In your letter of November 12 you wrote me that I would receive a book, "The Elements of the Science of Nutrition," which you had dedicated to me. The book has arrived and I have had an opportunity to look it over. You can easily imagine that it has given me great pleasure to see the truthfulness and understanding with which you have treated my part in the development of the doctrine of nutrition and I thank you with all my heart. I often read papers in which there is no mention of my work and which contain results which were long ago discovered by me. If I wished each time to raise a protest against this I would have nothing else to do. I comfort myself with the feeling that a time will come when the truth will be recognized. I think that your book will contribute to this.

. . . .

I wish you a happy, and in science, a blessed year . . . Thanking you again for this testimony of your devotion, I am your ever true old teacher,

Carl Voit.

And from Friedrich von Müller on January 1, 1907 I received the following message:

I wish to assure you that Herr Geheimrat Voit recently spoke of your book in the kindest fashion and that your dedication of it to him gave him pleasure. You have a true friend in this old teacher of us both.

In the summer of 1906 I attended the International Physiological Congress at Heidelberg and from there we went on to Munich. The Voit family had gone to the Tyrol and were living in a little hotel high up in the mountains at a place called Matrei. We went there for luncheon with them. The professor was then seventy-six years old and bent with age. He refused to allow me to help him with his coat and tried to step as sprightly as in other days, but when he thought I was not looking he lapsed into the gait of a very old man.

I asked him a scientific question, which roused in him certain personal antagonisms to which he gave such vigorous expression that I had to change the subject. But for the rest we had a delightful reunion. Frau Voit told my wife that whenever the Christmas remembrance arrived which I had been in the habit of sending him he invariably said to her, "He ought not to do this," but it always gave him great pleasure. It was on account of this custom that he sent me the last letter he ever wrote.

Dear Friend,

I received your friendly letter the end of September telling us that your wife and you had arrived safely in New York and had found your three children in good health. We rejoice with you in the happy ending of your travels.

I want again to thank your dear wife and you that you sought us out at Matrei. This happy and delightful day will be for us always a most lovely memory. The consciousness that we good friends could again see one another and in such beautiful surroundings has given us one of the happiest and most beautiful days of our lives.

You will ask me why I have not written you for two months and more. The interval has been unhappy for us and full of sorrow.

The condition of our daughter grew constantly worse and more critical so that a gastroenterostomy was decided upon. Recovery, however, was long drawn out, so that we always feared for the worst. All is now better and we have hope that the dear child is saved to us.

While we were all full of anxiety I became ill. I suffered from complete loss of appetite, repugnance for all food, and consequently sleeplessness, dizziness, great fatigue, and weakness. This has lasted for eight weeks without showing any sign of improvement. I have been obliged for the time to forego my lectures, which still give me the greatest pleasure, and turn them over to Cremer and Weinland. My physician has strictly forbidden me to make the effort to lecture, and I have therefore asked to be relieved from this obligation on the first of April. This will close the period of my life as teacher in the university. At that time my successor will be chosen. How I shall feel about this I do not know. In any case my greatest joy has been in scientific activity and in teaching students.

I hope all is better with you than with us and that you will continue to rejoice us with good news of your family. You have again surprised us with a beautiful present . . . Accept our affectionate thanks for everything, especially for the continuance of your friendship.

Mit den besten Grüssen,

Ihr stets getreu ergebener,
Carl Voit.

Voit died on January 31, 1908, aged seventy-seven years. He had suffered from a diabetes of long standing.

At the funeral the Prince Regent, the Duke Karl Theodor, who had been his pupil, other members of the royal house, members of the Academy of Sciences, and the intimate pupils of Voit, including Rubner, who came from Berlin, laid wreaths upon the grave.

I have presented this simple story to show why I could not have done otherwise in life than I have done. For whatever I may have accomplished is due to the inspiration and friendship of the master, Carl Voit. Without that relationship I would have been a person of no value whatever. I was able to bring home to America a certain amount of knowledge at that time unknown here. The principles of the methods of scientific advance are eternal. In large measure they were perfected by the Germans. Scientific progress does not depend on oratory, it does not depend on scribbling, it does not depend on men who sit at desks and think how to distribute funds; it depends on workers in the laboratory. A laboratory is like unto a city set on a high hill. Such a laboratory was that of Carl Voit.

AN ORTHOPEDIC CLINIC OF 1174 A. D.

By EDWARD K. CRAVENER, M.D., F.A.C.S.

SCHENECTADY, N. Y.

THE following cases are taken from the source book of St. Bartholomew's history, "Liber Fundacions Ecclesia Sancti Bartholomei London Iariuna." The script was written in the 12th century Latin by an Augustinian Canon in the priory of St. Bartholomew. The manuscript was translated into English about 1400. The similarity between this English and that of Geoffry Chaucer is apparent.

The original manuscript was first owned by the priory at Smithfield. At the time of the general dissolution of the monastaries, the book was lost and was later found in the possession of Thomas Otwell, a "stacioner" of London. An inscription by this owner "Iste liber pertinet ad Thomam Otwell de London" raises the suspicion of acquaintanceship with congenial but forgetful, borrowing friends. Later the book was found in the hands of Richard St. George, King-At-Arms, about 1600 and still later in the ownership of Thomas Cotton, son of Richard Cotton. From thence it has gravitated into the British Museum, there to be known as the Vespasian B IX.

OF ADWYNE THE CARPENTER

An nothir Alfunyne by name in the towne of Dunwych that dwellid on the see syde, so was contracte that he myghte nat use the free office, nethir of hande, ne of fote, his legges were clevynge to the hynder parte of his thyes, that he myghte nat goo, and his handis turnyd bakewarde, no thynge with them myght be do, ne worke: the extremyteis of his fyngers were so rigorisly contracte in the synowys, that he myght unneith put mete to his moweth. In this grevous sykenes he passid his younge age. And than he attayned to mannys age and not yette hadde he power of his lymmys, yette sith the fame of tokenys and myracles of the blessid apostle come to hym by relacion of othir men, he began to leyfte up his sorowfull soule in to abetter hope. And thow helth were yn that tyme dilaid, it was promysed to come. Therfore, for that he was ferre from that chirche, he yave shipmen for hyr hyyr and by shippe he was browght to the chirce, and put yn the hospitall of pore men. And ther a while of the almes of the same chirche y sustenyd. And he began yn the meyns while, by the vertu of the apostle to take breith unto hym, and he desirid helth, by certeyn incrementys began to come ageyn; workys as disstafes, and antell, and othir wommenys instrumentys, and forthermore by succession, when othir membrys usyd ther naturall myghte he followid yn greter workys, hewerrys of wode with axe, and squarerys of tymbyr with chippynge axe, and nat longe aftir, the crafte of carpentrye, yn the same chirche, and yn the cite of London he exercisid, as it hadde be taught him from his childehode, blessynge God, whoes yen, be oon them, that dredith hym, and uppon them that hop on this mercy.

The discussion on such a case must have been as follows. A man, crippled since his early youth, from a seaport town, with flexion contractures of the knees, feet, hands and with marked contractions of the terminal phalanges and limitation of external rotation of his shoulders presented himself for treatment. The differential is easy. He came from a low, flat country with abundant moisture, the disease came on early in life with flexures which were not congenital and persisted. This must have been Still's disease or infectious arthritis of youth. This point is proved by the later course of the disease; when he was put in bed in a more equitable climate and probably better fed, he regained partial use of his hands. The physiotherapist, without knowing that he or she was a physiotherapist, started him working with his hands. He built some distaffs and made little weights and "othir wommenys instrumentys." From light labor at first, he progressed so that other members increased their muscle tone and motion. He followed these by "greter works," wood cutting and squaring timbers. Finally he taught himself the carpenter's trade, developing a skill equal to those who had served a long apprenticeship. Certainly this is one of the very early cases of recorded recovery of motion in the chronic infectious arthritic and a triumph for the cause of rehabilitation.

Had an orthopedist been recognized as such in those days, he would have probably presented the following case for the delectation and amazement of his colleagues.

Of An Yonge Growynge Man

Ther was a yonge man Osberne by name whoes right hande clevyd to his lyfte schuldyr, his hede compressid down to the hande laye unmevable, and nethir the hande from the shuldyr, ne the hede from the hande myghte be departed, this man cummynge a forne the auter of the blessid apostle Bartholomewe with sighynge terys his mercy mekely bewought. And he deservyd graciousy to be herde. And therefore whan the fredome of his lymys were y hadde, God that is mervelous in his seyntes, he with alle them that wer present, with worthy preysyng magnyfied.

This sounds like a birth injury. The arm was held in marked internal rotation, the elbow flexed and the hand held in acute dorsoflexion. The head was pulled over by a contracted sternocleidoidmastoid. The orthopedist would probably have read this case forth and delivered himself of a long and tiresome lecture on the many crimes done in the name of obstetrics. He could have explained at length that some undue traction was brought on an abducted arm when the after-coming head was caught under the symphysis and a brachial plexus injury of a minor degree developed. Later the repair of nerve tissue allowed return of muscle power and encouragement completed the cure.

The third history in this clinic of 1174 A.D. was of a charity case, by name, Wolmer, who had been afflicted for thirty years. The history is given as follows.

Of Wolmer Contract and There I Curid

There was an sykeman Wolmer be name with grevous and longe langoure depressid, and wrecchid to almen that hym behylde apperyd, his feit destitute of naturall myght hyng down, his legges clevyd to his thyis, part of his fyngers returnyd to the hande, restynge alwey uppon two lytyll stolys, the quantite of his body, to hym onerous, he drew aftir hym, and to the encrese of his wrecchidnesse was addyd grete poverty, yn more affliccion to hym than his langoure: sith to a man that nethir myght labur, ne goo, were withdrawe necessaries of his lyvelode, this wrecchidnes was so mykill to hym the more grevous, that it was longe abidynge, trewly almost wyntered with this so grete a sykenes was he deteynd: and he thur othir with crepynge, othir with the helpe of othir i born sate at London yn the Chirche of Poulis, askynge almes of them that entered yn. This i don nowe come the tyme acceptable, the yere to benygnte, in the whiche Rayer hadde sette the fowndementys of his holy temple, and the fame of the newe werke, as it were a full swete odur dyffusyd by the mowthis of all the peple, it myght nat be hedde from hym, the whiche by the mercy of Oure Lorde conceyvd a swete desire and feithfull, that he myght be borne to that place, ther to beeske God of his helpe. And he of his frendes thiddir thus borne yn a basket felle down a forne the awter, porrectynge his meke prayers to hevyn, and to the hye and glorious meritys of the blessid apostle alleggying them to the hye and dredfull juge, that by them he myght obteyne forgevenesse of synne and his bodyly helth. And with owte tariynge, that welle of pyte, that was and is opyn to the menstruat woman and synful man, was present at his callyng, and a streem and ryver of helth and grace of hym self made welowte: and by and by every crokidnes of his body a litill and litill losid, he strecchid un go grownde his membris and so anoon avawyntynge him self up warde, all his membris un naturale ordir was disposid.

The discussion would probably reveal that Wolmer had an infectious arthritis and inadequate care, therefore flexion deformities developed. His poverty cut down his diet. His home conditions must have been bad. In treatment, he changed his climate, he increased his exercise and thereby his muscle tone. He encouraged himself to better posture, to deeper breathing by voluntary effort. His recovery was slow, to quote the narrator, "By and by every crokidnes of his body a litill and litill losid, he strecchid un go grownde his membris yn naturale ordir was disposid." Again a case benefited by exercise, by increasing muscle tone and by correction of deformity.

OF AN OTHUR CALLID NYCHALAS

A childe faire of forme, Nicholas by name, so had he his legge so strecchid forth, to the upper parties of his thyy, that he myght nat putte ht forward ne drawe yt bakewarde, yn asmoche that the synowys were dryed up and alweys lackid bowablenesse, he therfore lenyng on a staffe usid that yn stede of his fote. This childe cummynge to the chirche of the blessid apostle Bartholomew was expert that Oure Lorde is full sweytt to al men and his mercy ys abovyn, hete of lyf was ynfowndid to seyr and drye membrys and anoon folowid full helth, the whiche chylde abided ther a while and servyd the chanons ther, yn ther hychyn, and for the yifthe of his helth, he yave the servyce of his body.

The patient is a child, blond, well nourished and formed, with a contracted, flexed knee with definite atrophy about the joint. There is no sign that pain was present at the time of entrance to St. Bartholomew's. The patient had long accustomed himself to the use of a crutch. The course of the disease was "hete of lyf was ynfowndid to seyr and drye membrys and anoon folowid full helth" with the result that the child was able to work in the kitchen, which apparently must have entailed a certain degree of agility, if the duties of a small boy in that part of a priory were the same then as they are today. The differential, therefore, would be between tuberculosis; spastic monoplegia; infantile paralysis; gonorrheal, septic or a monarticular infectious joint or an old traumatism. From the description we can rule out the septic joint since recovery could not possibly follow such therapy. Infantile paralysis with a weakness of the quadriceps group and a relative strengthening of the hamstring groups would give us a flexed knee. The result of physiotherapy and suggestion on such a joint in the postparalytic phase might be definitely salutary. The septic joint with ankylosis certainly would not be benefited by such treatment. The monarticular arthritis of the infectious type, even now is so firmly fixed as to be definitely resistant to even the most advanced methods of treatment. A hemophilic joint or a joint into which free bleeding had occurred might flex and atrophy result from the disuse but the fusion resultant from either of these disorders would, more likely than not, be bony rather than fibrous, and incapable of cure by medical means. Tuberculosis is the most likely. First of all, the child is in the age period in which most tuberculous joints present themselves. Second, the child is "faire of forme" which type of individual, since the days of Hippocrates, has been noted to be more subject to acid-fast infections. Third, tuberculosis was almost endemic during that period. Fourth, the muscle atrophy so characteristic of the spindle joint of tuberculous arthritis is here present. Fifth, the fact that the joint was kept still and weight bearing avoided, without ankylosis intervening, further confirms the belief in an acid-fast infection. The long period of localized rest worked in this patient a definite cure.

The type of case here presented far outnumbers the others in the early history of St. Bartholomew's. There is probably a very definite reason for this; the virulently infectious diseases carried off the patient without allowing him to become a cripple, whereas the congenital cripple or the patient with acquired deformity was allowed to live and exhibit his disorder.

SOME NOTES ON

RICHARD LOWER (1631–1691), AND HIS "DE CORDE," LONDON, 1669

By K. J. FRANKLIN, D.M.

OXFORD, ENGLAND

RICHARD LOWER'S pioneer work on the anatomy and physiology of the heart deserves more notice than it has in the past received. When, therefore, it, was suggested to me last year that I should undertake the translation of Lower's book, I assented, none the less willingly because his work was carried out not far from where I am at the moment writing (it is very probable that Lower dissected in what is now the Auctarium of the Bodleian Library, then part of the School of Medicine). During the preparation of the translation for publication[1] with a facsimile edition, I have come across a few points of interest, which I consider worthy of separate mention, and I am perhaps less averse to bringing them forward, when I remember that this year is the tercentenary of Lower's birth.

The first point concerns a cancel-page in the dedication of "De Corde" to Dr. Thomas Millington, of All Souls College. The original page occurs in only one copy which I have seen, that, namely, which is in the possession of the Royal Society of Medicine. The six copies in the Radcliffe, Bodleian, British Museum, Royal College of Physicians', and Royal College of Surgeons' Libraries all have the cancel-page, the chain-lines of which run in the opposite direction. The reason for the cancel is not obvious, for the alteration only serves to provide room for an unimportant extra clause in Lower's already scathing passage about his old antagonist, the Irish doctor O'Meara.[2] Reproduced here are photographs of the corresponding pages in the Royal Society of Medicine copy (Fig. 1), and the Radcliffe Library copy (Fig. 2).* The torn edge of the original page in the latter shows sufficient letters to identify it with the text of the former. It would be of interest to know if the other copies, which exist, have this cancel-leaf or not.

The second point concerns the date of publication. The title-page of the British Museum copy, which is here reproduced (Fig. 3), shows it to have been in the possession of Dr. Walter Charleton in 1668, the year before the printed date of publication. Such discrepancy can be paralleled in the case of other contemporary books, but it is not the less interesting to find it here, and Dr. Charleton's unvarying accuracy[3] is sufficient guarantee for the date.

"He was an exact scholar, critical of Latin," and was at pains to emend Lower's Latin throughout this copy; he treated similarly the copy of Needham's "De Foetu," which is now in the same library.[3]

There is, apparently, only one portrait of Lower in existence (Fig. 6), and I have some information about it.

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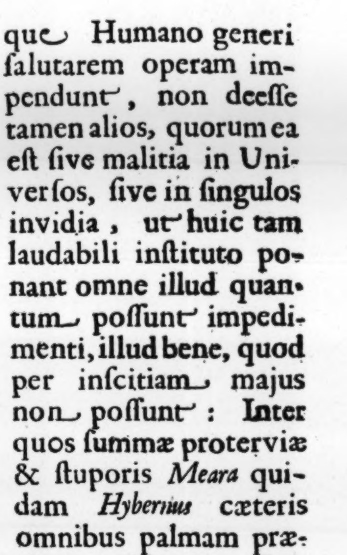
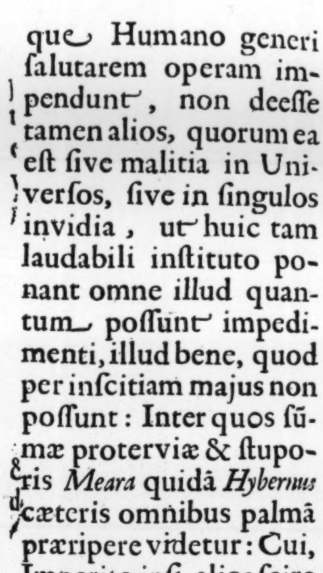
* Mr. Strickland Gibson, of the Bodleian Library, an authority on such matters, says that these two figures "supply one of the neatest examples I have seen of the devices of a compositor to gain extra lines by varying spelling and spacing."

It forms the frontispiece to "Dr. Lower's, and several other Eminent Physicians Receipts: containing the Best and Safest Method for Curing most Diseases in Humane Bodies etc.," London, 1700, and was copied in the German edition of this work (e.g., that of 1707, Leipsig). Granger[4] suggests that this portrait is not authentic, and Bromley[5] that it is a spurious one, taken from that of Robert Loveday. Through the courtesy of the authorities at the National Portrait Gallery, I was able to compare the two portraits. Loveday and Lower face in opposite directions, and their dress is different; there is a resemblance between them, but Lower looks definitely the more virile of the two. For the present, therefore, I personally am inclined to oppose Bromley's contention, and to await further evidence for Granger's. If the portrait is authentic, however, Lower must have been very well-preserved at the age of fifty-five.



que Humano generi ſalutarem operam impendunt, non deeſſe tamen alios, quorum ea eſt ſive malitia in Univerſos, ſive in ſingulos invidia, ut huic tam laudabili inſtituto ponant omne illud quantum poſſunt impedimenti, illud bene, quod per inſcitiam majus non poſſunt: Inter quos ſummæ proterviæ & ſtuporis *Meara* quidam *Hybernus* cæteris omnibus palmam præripere videtur: Cui, Im-

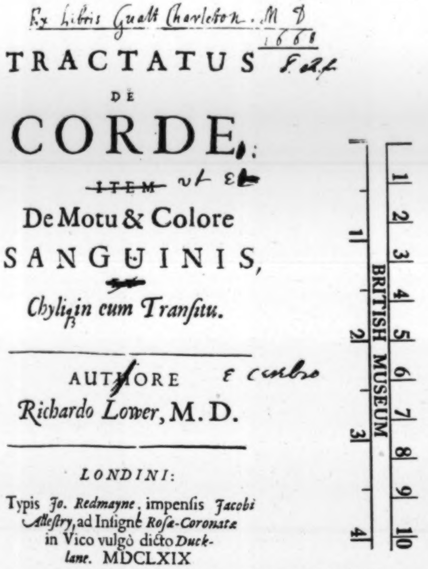
Fig. 1. The Seventh Page of the Dedication of Lower's "De Corde," 1669, in the Royal Society of Medicine Copy.



que Humano generi ſalutarem operam impendunt, non deeſſe tamen alios, quorum ea eſt ſive malitia in Univerſos, ſive in ſingulos invidia, ut huic tam laudabili inſtituto ponant omne illud quantum poſſunt impedimenti, illud bene, quod per inſcitiam majus non poſſunt: Inter quos ſũmæ proterviæ & ſtuporis *Meara* quidã *Hybernus* cæteris omnibus palmã præripere videtur: Cui, Imperito ipſi, alios ſcire quic-

Fig. 2. The Corresponding Page of the Radcliffe Library Copy, Showing the Torn Edge of the Leaf Which Has Been Removed.

A signature of Richard Lower is preserved in the first "Journal Book and Charter-Book of the Royal Society,"[6] of which he was elected a fellow on Oct. 17, 1667.[7] Another (Fig. 4) is reproduced here from a letter of his, prescribing for a nobleman.[8] A third, more formally inscribed, is on the fly-leaf of a copy of the fourth edition of "De Corde," which he presented to the Library of his old College, Christ Church, and which I reproduce here (Fig. 5) by permission of the Librarian, Mr. J. G. Barrington-Ward. Mr. Percy Simpson tells me that "the two last letters" in this inscription "are a survival, curious so late as 1680, of the Elizabethan *d*, used in the old English script. I suppose it is the votive character which determines this use. But it is D.d.d. (Dat, dicat, dedicat)."


Ex Libris Gualt Charleton. M D
1668
TRACTATUS Ed. 4
DE
CORDE.
~~ITEM~~ ut et
De Motu & Colore
SANGUINIS,
Chyli in cum Tranſitu.

AUTHORE E carbo
Richardo Lower, M. D.

LONDINI:
Typis *Jo. Redmayne*, impenſis *Jacobi Alleſtry*, ad Inſigne *Roſæ-Coronatæ* in Vico vulgò dicto *Duck-lane*. MDCLXIX

BRITISH MUSEUM
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FIG. 3. THE TITLE-PAGE OF THE BRITISH MUSEUM COPY OF "DE CORDE," WITH THE SIGNATURE OF DR. WALTER CHARLETON, AND HIS WRITTEN DATE, 1668.

Finally, I should like to mention that John Browne's "Myographia nova," 1697, contains a short appendix[9] written by Lower, and published posthumously here.

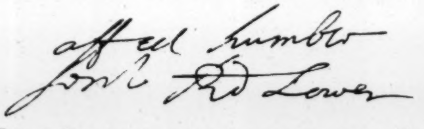
affed humble
servt Rd Lower

FIG. 4. RICHARD LOWER'S SIGNATURE, FROM HIS "LETTER, PRESCRIBING FOR A NOBLEMAN."

> *This Accurate and Concise Discourse of the* Heart, *and its Use as also of the* Circulation *of the* Blood, *and the Parts of which the* Sanguinary Mass *is made, was Written by the Late Learned Dr.* Lower, *and Presented to a Person of Quality, who was pleased to favour me therewith, in order to have it added to this my* Graphical Discourse *of the* Muscles.

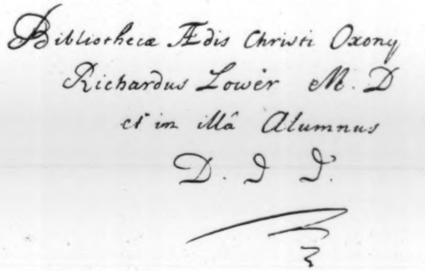
Bibliotheca Ædis Christi Oxony
Richardus Lower M. D
et in illa Alumnus
D. D. D.

FIG. 5. RICHARD LOWER'S SIGNATURE, FROM THE PRESENTATION COPY OF THE FOURTH EDITION OF "DE CORDE" IN THE LIBRARY OF CHRIST CHURCH, OXFORD.

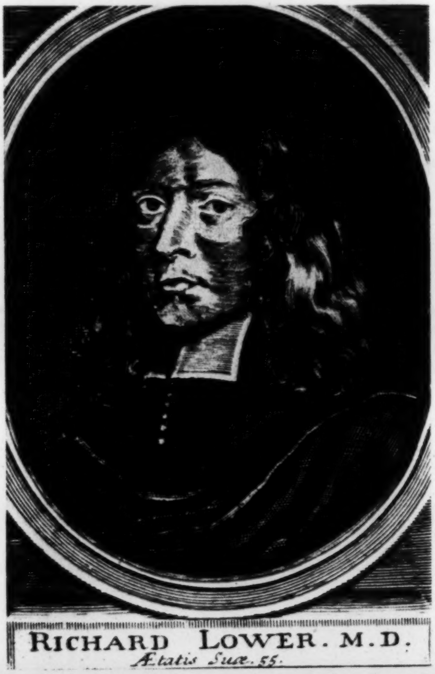
RICHARD LOWER. M.D.
Ætatis Suæ. 55.

FIG. 6. THE ONLY PORTRAIT OF RICHARD LOWER, FROM THE FIRST EDITION OF "RECEIPTS," LONDON, 1700.

Such other points of interest about Richard Lower, his work, and his writings, as I have already accumulated, or shall accumulate, I hope to include either in the introduction to the facsimile edition, with translation, of "De Corde," or in a critical survey of his work, which I expect to complete at some later date.

I am indebted, for help in connection with this present paper, to Professor J. F. Fulton, to Mr. H. E. Powell, Librarian, the Royal Society of Medicine, to Mr. W. J. Bishop, Assistant Librarian, Royal College of Physicians, and to Mr. Le Fanu, Librarian, Royal College of Surgeons of England. I wish to tender them all my thanks.

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2. Dictionary National Biography, Oxford, 1908, 13: 197–198.
3. *Ibid.*, 4: 116.
4. GRANGER, T. A Biographical History of England. Ed. 5, 1824, 5: 217.
5. BROMLEY, H. A Catalogue of Engraved British Portraits. 1793, 1: 101.
6. Reproduced by Oxford Univ. Press, 1912.
7. Dictionary National Biography, 1908, 12: 203–204.
8. British Museum, Add. MS. 15858, f. 62.
9. "An Appendix of the Heart, and its Use: With the Circulation of the Blood, and the Parts of which the *Sanguinary Mass* is made, etc."

ANTON TCHÉKHOV

A RESUMÉ OF HIS WORKS AND OF HIS CAREER

By B. BARKER BEESON, M.D.

CHICAGO, ILL.

ANTON PAVELOVITCH TCHÉKHOV was born at Taganrog, a port on the Sea of Azov, Southern Russia, January 17, 1860. He was one of six children. His parents were of peasant stock, the paternal grandfather having been a serf who by the most rigid economy had saved enough to purchase the freedom of his family and himself in 1841 or almost twenty years before the general liberation of the serfs by Alexander II. This cost him about 3500 roubles then equal to about $1750.00. Tchékhov's father while employed in a Taganrog commercial house had saved up a modest sum with which he opened a store devoted to the sale of colonial products. Adverse conditions resulted in the failure of this enterprise in 1876. After selling everything to satisfy his creditors the father and the rest of the family moved to Moscow leaving Anton alone in his native city. His infancy must have been a sombre affair since he was only allowed out in order to attend the nearby Greek Catholic Church. In later years he referred to that time of his life as follows, "When I recall my infancy it seems to have been hideous. I have no religion now. When my two brothers and I sang in the church, the crowd gazed upon us with admiration and envied our parents but we felt ourselves to be veritable prisoners."

Tchékhov attended a public school in the outskirts of Taganrog. The pupils were chiefly the children of laborers, artisans and sailors. An ignorant and brutal Greek acted as the schoolmaster. He used the whip freely. In the lower grades Anton was a dull, lazy scholar and the butt of many practical jokes. With the advent of manhood and his entrance into the College of Taganrog a radical change took place in him. He became a clever student and kept his fellows roaring with laughter at his jokes and witty retorts. Tchékhov aided in editing a school paper called the *Little Star* and also worked on a humorous journal. About that same time he wrote a farce "The Little Chickens Do Not Sing In Vain" and also a piece called "The Orphan." After the departure of his family for Moscow he was forced to take up tutoring which continued until 1879 when having passed the entrance examinations he matriculated in the Faculty of Medicine of the University of Moscow. Tchékhov wrote afterwards that no special reason urged his choice of medicine as a profession but that he never regretted his action. While a medical student it was incumbent on him to aid in the family support so we find Tchékhov busily engaged in writing upon anything which would be pleasing to the public and at the same time pass the eagle-eyed censor. Henri Duclos who has dedicated his excellent thesis[1] to an exhaustive study of the life and works of Tchékhov, states that his first Moscow contribution appeared in a humorous journal *The Little*

Book. It was called "A Letter To My Friend The Savant." For two years more he kept on writing most diligently before he received recognition. His contributions were signed A. Tchékhonte, the name given to him by the professor of religious instruction at Taganrog. During this time Tchékhov inhabited a dingy basement room in the Drachova quarter of Moscow. N. Lakin is said to have been the first editor to recognize his real worth. He asked Tchékhov to contribute to a comic journal of rather good standing. During those times his life was a tragedy, the combined incomes of his father and himself barely sufficing for the family support. Tchékhov, both mentally and physically, never recovered from those days of misery and they contributed much towards his early death. Duclos quotes from a letter written to Tchékhov by his editor in which he offers to present Tchékhov with theater tickets or suggests that it would be better if the writer went to the editor's tailor and ordered a pair of trousers to be charged to his account.

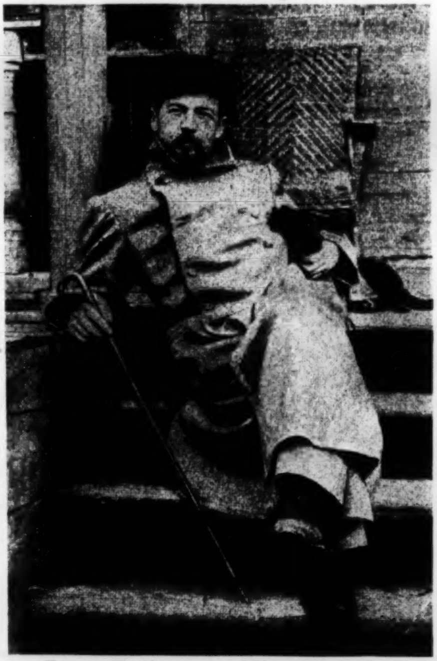

FIG. 1. TCHÉKHOV AT MÉLIKHOVO, 1897.

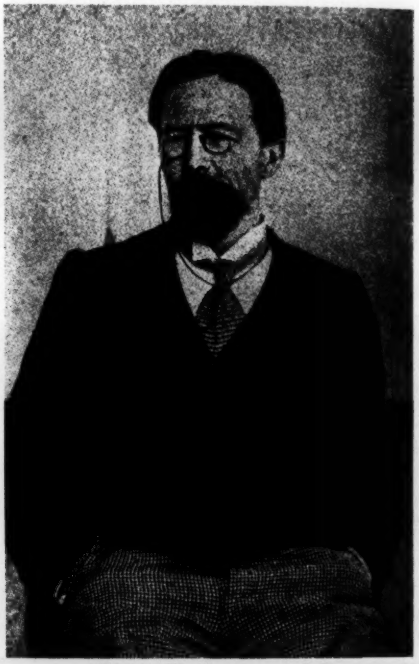

FIG. 2. TCHÉKHOV IN 1898.

In 1884 Tchékhov received his medical degree from the Moscow University. He spent that summer with a brother who taught school at Voskressensk. Later several months were passed at the Zemstvo or District Hospital of Zvenigorod, not far away. While there Tchékhov besides his duties as a rural practitioner also cared for the indigent and acted as a sanitary expert. About that same time the *Gazette of Petersburg* asked for his collaboration. In 1886 D. V. Grigorivitch, one of Russia's literary celebrities, wrote to Tchékhov as follows, "You have a real talent, a talent which places you well above the group of writers of the new generation." Soon afterward Alexis Souvorine, the owner and director of the *Novoie Vremia*, one of the best known Russian publications, also asked for Tchékhov's collaboration. A little later he was given a hearty welcome at Petersburg by the literary celebrities. In 1889 Tchékhov received the Pouchkine Prize from the Russian Academy of Sciences. This was considered a signal honor. "Ivanov," a drama of his was presented at both Petersburg and Moscow and was a striking success. "The Steppe," one of Tchékhov's longer novels, was published by a celebrated review, the *Severny Vestnik*. Two of his other works, "The Dawn" and "Obscure Beings" appeared about that same time. Even in the midst of these successes Tchékhov was still poor and thus compelled to work like a slave in order to aid his family. He became exhausted from overwork and insufficient nourishment and one day he had a pulmonary hemorrhage. No one knew better than he the significance of such a sign but he labored on and did not alarm his family.

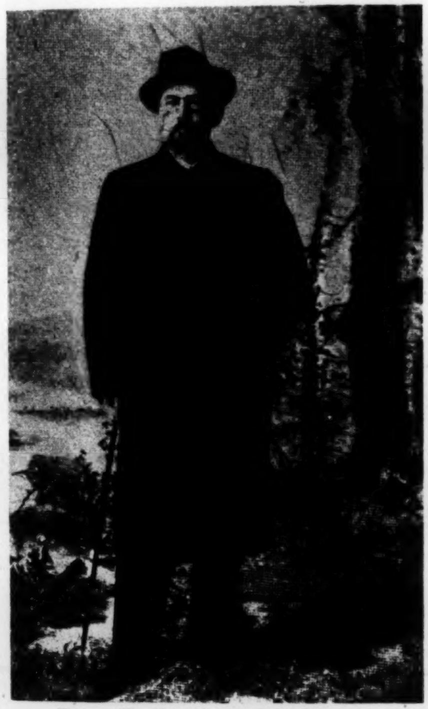

FIG. 3. TCHÉKHOV IN 1898 (YALTA).

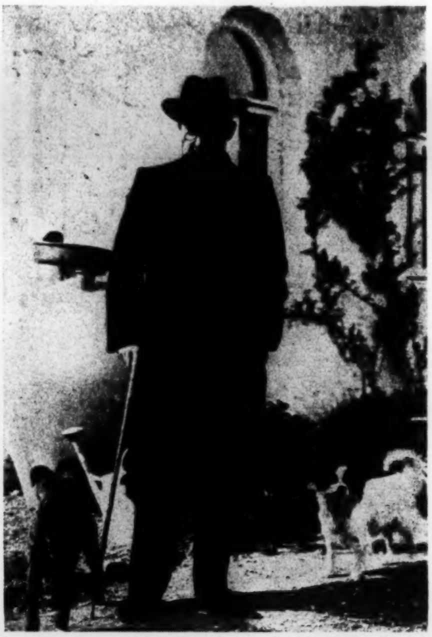

FIG. 4. TCHÉKHOV WITH HIS DOGS AT YALTA, 1901.

In 1890 Tchékhov left for the Island of Saghalien, then a celebrated prison, off the Asiatic coast. He arrived after a three months' trip across Siberia which had no transcontinental railroad at that time. He returned by the ocean route. He wrote about Saghalien in a book entitled "The Island of Saghalien," which produced a profound impression upon both the government and the general public. This work also earned for Tchékhov the Archbishop Makary Prize. Soon after his return he left Moscow and went to live in a rural community in the Province of Mélikhovo. There he secured a home and remained with his family until 1898. While there Tchékhov was quite active in the private practice of medicine as well as in the Zemstvo of Serpukhov. He was also very busy from the literary point of view having produced a number of works during that period. Among them may be mentioned: "Room Six," "The History of an Unknown," "The Kingdom of Women," "The House With a Mezzanine," "the Black Monk" and "My Life." He also collected material for "A Murder" as well as for "The Peasants."

In 1898 Tchékhov returned to France which he had visited for the first time in 1891 and spent some time along the Côte d'Azur. He soon went back to Russia and settled down at Yalta, the fasionable Crimean resort. There he built a home. It was at Yalta that most of the short time left for him to live, was spent. By this time his tuberculosis was well advanced and he had entirely abandoned the practice of medicine. Marx, the well known Petersburg publisher, had purchased all of Tchékhov's works so he was no longer worried about finances. Because of his illness he was most indulgent with the poor consumptives who came to Yalta in search of a cure. The foremost writers among his countrymen, among them Tolstoi, Gorki, Bounine and Kouprine, spent much time with him. In January 1900 Tchékhov was elected an honorary member of the Academy of Sciences but he resigned along with Korolenko two years later as a protest against Gorki's rejection.

In the summer of 1900 the troupe of the Artistic Theatre of Moscow came to Yalta and presented two of Tchékhov's plays, "Uncle Vania" and "The Sea Gull." Late that same year he completed "The Three Sisters" which was produced by the Moscovite Artistic Theatre early in 1901. A few weeks later Tchékhov was married to Olga Leodarnovna Knipper, an actress of the Artistic Theatre whom he had known for about one year. Their brief honeymoon was spent in the Caucasus. Tchékhov's condition soon compelled them to return to Yalta. Not wishing to hinder his wife's career he sent her back to Moscow. By this time his weakened state prevented Tchékhov from doing much writing but he finished the "Cherry Orchard" which some have considered his most touching work. He passed most of the winter of 1903–1904 at Moscow awaiting the initial performance of the "Cherry Orchard" which occurred on January 17, 1904, the forty-fourth anniversary of his birth. It was a big success but the reaction affected him unfavorably and early in the summer he was sent to Badenweiler, in the Black Forest of Germany. He became steadily worse but cheered up his family and friends to the last. July 2, 1904, saw the end of Tchékhov's remarkable career. He died alone in a foreign land. His remains were transported to Moscow in a car usually employed for hauling oysters. So we see that ridicule which he always dreaded during life was not spared him in death.

Not a few of Tchékhov's writings should interest us because of their frequent allusions to things medical. No one but an actual practitioner of medicine could describe them so vividly. Tchékhov's keen vision plus an unusual capacity for searching but kindly criticism combine to make his works intensely human, tinged frequently with that pessimism so common to Russian writers. A victim of the white plague himself he knew how to adequately describe human suffering. The suffering incident upon his early life also left a permanent imprint upon him which no doubt had a good bit to do with the naturally pessimistic tone of his writings.

One can, I believe, begin this hasty and by no means complete resumé of those of Tchékhov's works which touch upon medicine,[2] by considering first of all what is probably the best known among them "Room Six." It gives a detailed description of a zemstvo or district hospital in rural Russia, about forty years ago. The rooms were filthy and cluttered up with cast-off garments. There was a marked odor of decomposing urine. The bathtubs were filled with potatoes and other vegetables. The attendants were ignorant, brutal and dishonest. The supplies were being stolen constantly. The attendants and their families lived pell-mell among the inmates. Scalpels and even thermometers were hard to find. Erysipelas was always present. Vermin, lice especially, abounded. Mosquitoes and other winged insects found an easy ingress and added to the general discomfort. In short, the whole place conveyed an idea of inadequacy and of misery which is hard to equal. An annex to the main building served as an insane ward. This was Room Six, which boasted of a half dozen inmates. Among them was a harmless Jew who was allowed to solicit alms in the town. On his return he was invariably despoiled of his gains by Nikita, the brutal attendant of Room Six.

Dr. Andre Efimytch Raguine, the chief physician of the hospital and the leading figure of the story, was a large coarse man, apparently of peasant stock. Tchékhov compares him to the keeper of an inn along the main highway. He dressed poorly and was brusque and rude, probably to hide what was really a timid nature. Raguine originally regarded his hospital with extreme disgust and in his early days of enthusiasm, was desirous of inaugurating much-needed reforms. He even thought of closing it forever and sending the patients away but after reflecting that they would probably be sent to another pest-hole, he gave up the fruitless struggle with disease, filth, vermin and dishonesty and went about his daily routine with little attention to the art or science of medicine. Since the patients were numerous one had but little time for each individual so the physicians contented themselves with a brief interrogatory of each one who was then given a vague sort of remedy such as a soothing ointment, or castor oil. Since he had no private clientèle Raguine devoted his spare time to reading and in revery, rarely seeing visitors. His only medical journal was the *Vratch* (The Physician) which he read backwards.

Raguine realized that a marked evolution had occurred in medicine during the past twenty-five years. As a student he had regarded medicine as little better than alchemy or metaphysics but now its progress evoked in him a most profound admiration and enthusiasm, in the course of his reveries. Thanks to antisepsis one could now perform operations which would have seemed impossible even to the great Pirogoff. Ordinary district physicians were even able to resect the knee-joint. In one hundred laparotomies there would be but one death. The operation for stone in the bladder was an everyday affair. Syphilis was subject to a radical cure. "Bah," said Raguine, opening his eyes after such a revery, "What is the good of all this. Neither antisepsis nor Pasteur nor Koch can change the nature of things. The morbidity and the mortality are the same. Dances and shows are arranged for the insane but they are not always released. Finally, all is in vain and absurd. Between my hospital and the best Viennese clinic there is in reality no difference." He is finally adjudged insane and committed to Room Six where he soon expires in what was probably an apoplectic seizure. Tchékhov depicts in a most unusual way the visions which pass before Raguine as he is about to cross the Great Divide.

At first he had a sharp chill along with nausea. An odor, comparable to the offensive smell of sour cabbage and spoiled eggs, permeated his entire body even to his finger tips. It mounted from his stomach to his head and even filled his eyes and ears. Then Raguine saw feeble flashes of light. A troop of antelope of extraordinary grace and beauty, about which he had read the night before, passed before him. A woman tendered him a registered letter. Michael Averianytch said something to him. Then all became dark and Andre Efimytch forgot everything forever.

Raguine's chief assistant was Serge Serguieitch, a short stout man, with a fat, shiny and smoothly-shaven face. His manners were both polite and affable. In his new and well cut garments he looked more like a senator than an assistant surgeon. Serge Serguieitch wore white neckties, had a large clientèle and considered himself as infinitely superior to Andre Efimytch who had no private practice. He was very religious and at his own expense placed a sacred image in the visitor's room at the hospital. On Sundays, at his instigation, one of the patients read the litany aloud and afterwards Serge Serguieitch himself, passed through the wards with an incense-pot and sprinkled its contents upon the patients.

Raguine's other assistant was Eugène Fiodorovitch Khôbotov. He was a very young man, not thirty years old, dark, tall and with prominent cheek bones and tiny eyes which spoke for Tartar or Finnish blood. He arrived in town without a sou, carrying a small valise and accompanied by an ugly young woman, who passed for his cook. She nursed an infant. Eugène Fiodorovitch wore a cap with a visor and high boots. In winter he wore the sheepskin coat of a moujik. He possessed but a single book, "The New Prescriptions of the Clinic of Vienna" for the year 1881. He always carried it with him even when calling upon the sick.

In a short sketch entitled "A Typhoid Fever" we find an excellent description of that disorder as it affected a certain Lieutenant Klimov. During its entire course he was possessed of a strange disgust for the odor of roasted meats as well as for tobacco. Once when almost at death's door he was permeated by the odor of incense. Klimov finally recovers only to learn that his sister has succumbed to typhoid fever.

"The Duel" presents two widely different medical types. First is the army surgeon, Samoilennko. Despite an apparently rude exterior he is a general favorite. He lends money, treats the sick gratis, reconciles lovers who have quarreled, arranges marriages, organizes picnics, and in short tries always to be of service. His chief weakness is to have the soldiers and the nurses address him as Your Excellency. Dr. Oustimovitch, tall and thin, is quite another sort. Before the duel between Laievski and von Koren he is careful to tell them that each contestant must pay him fifteen roubles and if but one survives, he must pay thirty roubles. Laievski is pictured as deeply affected by the dull eyes and thin neck of Oustimovitch who looks much like a consumptive and judging from his actions is more of a usurer than a physician. The peculiar odor of his breath is compared to that of raw meat in a butcher shop.

"Three Years" brings us to Nina Laptiev who has been operated upon for a cancer which has recurred. Her physician, Dr. Borissytch is not one to inspire confidence. He is very suspicious and believes that no one trusts him. He is also of the opinion that the public exploits him continually and that his colleagues treat him shabbily. A most untidy office, the doctor with his red face, disordered hair, long redingote, piles of old papers in the corners and an old sick dog under the table complete Tchékhov's picture of him.

The tale entitled "Ionytch" deals chiefly with Dr. Dmitri Ionytch Startsev, a rural practitioner, attached to the local zemstvo, whose attempted courtship is rejected by Ekatherina Tourkine. He builds up a large private practice and becomes prominent locally. Later he in turn throws cold water upon Miss Tourkine when she speaks of matrimony herself.

With advancing years Startsev has grown stouter, is short of breath and has the congested face of a bon vivant. He is rich and glad that he did not wed. He is irritable and rough and when aroused strikes the floor with his cane. His cupidity compels him to retain his zemstvo post even though he does not need the salary.

Dr. Astrov in "Uncle Vania" relates some of his experiences. He is overworked, on the go from morning until night. Sleep comes with difficulty because he may be called out at any moment. Life he regards as a nuisance, stupid and dirty. He tells of visiting a village where there is an epidemic of typhus. The sick were scattered all over, even alongside of the cattle and the pigs. He ate nothing all day. On returning home Astrov was asked to care for a railroad switchman who had been badly injured. On placing him on the table for operation after chloroform had been given he found that the anesthesia had proved fatal.

The zemstvo physician, Dr. Grigory Ivanovitch Ovtchinnikov, a thin and nervous person, is known among his confrères because of some insignificant medical statistics which he compiled as well as for his attachment for so-called practical questions. He has an altercation with the drunken hospital orderly whom he strikes but the doctor is exonerated. This occurs in one of Tchékhov's short sketches entitled "A Disagreement."

Another sketch called "La Linotte" portrays the truly tragic existence of Dr. Dymov who has married a silly faithless woman. He acts as assistant in one hospital and is prosector in another one. Dymov has no clientèle worthy of mention. He becomes sick. One of his colleagues who attends him speaks to the wife as follows. "Do you know how he contracted this. Tuesday he aspirated with a tiny tube the diphtheritic membrane from a small boy who had a malignant form of that disease. Now Dymov has diphtheria in the nose and his heart is acting badly. All in all things are going poorly." He dies and only then does his wife realize what has occurred and what a splendid character Dymov had been.

In a short sketch entitled "My Wife" Tchékhov refers to an epidemic of typhus. Dr. Sobole, the zemstvo physician, has been without sleep for the past two nights. The first one was spent in attendance upon a case of childbirth and the second night was passed at the home of a peasant where the bed bugs were both numerous and active. Sobole is pictured as a weak and unhappy man who becomes quite intoxicated after three glasses of vodka, eats like an animal and addresses everyone as Excellency in Italian.

Tchékhov is generally credited with wishing to portray a case of megalomania in the "Black Monk." The leading character is a young professor agrégé, Kôvrine by name. He is exhausted by his efforts in reaching his position but will not admit fatigue and works on, snatching some rest now and then. One morning he has an hallucination during which a monk dressed in black but with a very pale countenance appears before Kôvrine and predicts for him a most brilliant future saying that God has appointed him to conduct mankind to the Kingdom of Eternal Truth. Upon hearing this Kôvrine is convinced of its truth. The monk appears before him frequently. Kôvrine is meanwhile making brilliant progress. He takes unto himself a wife who seeing that he is ill compels him to seek medical advice. Bromides a milk diet, rest and hot baths plus abstinence from alcohol and tobacco do much for the patient but he is unhappy because the monk has not appeared for some time. Kôvrine realizes his faults and regrets his condition saying, "I was a megalomaniac but at least I was original and interesting." He obtains a professorial chair but just before his opening lecture he is stricken with hemoptysis which is repeated thrice within a month. Kôvrine goes to Yalta in search of health. The monk appears soon after his arrival and again Kôvrine believes himself to be a genius. Just then blood wells up into his mouth and he falls dead from a severe hemorrhage as he recalls the scenes of his youth.

In "Brave People" we are introduced to the Doctoress Viera Semionova who is cold, apathetic and dislikes the practice of medicine. She calmly sees her brother pass away. Tchékhov compares her, at that moment to a sick animal which is sunning itself.

In "The Shock" a law student, Vassiliev, after visiting with some friends several Moscovite houses of prostitution, is taken to a psychiatrist, Dr. Mikhail Serguieitch, by them. The doctor seriously notes down a complete personal and family history. Vassiliev is suddenly overcome with self-pity and also commiseration for the miserable creatures he has seen in the brothels. He begins crying and falls to the floor repeating, "They are alive, alive. If I broke this lamp you would be very angry, while down there it is not a question of lamps but one of human beings." The doctor with an air of thoroughly understanding the situation, approaches Vassiliev and after giving him some drops then tests the sensibility of his skin with a compass-like affair. After this the patient feels relieved despite his anger against the physician and pity for himself. Upon departing he is given two prescriptions, one for bromide and the other for morphine.

A third year medical student and his mistress, are shown in "Anioûta." They are poor and on the verge of starvation. He is preparing for an examination in anatomy and repeats continually, "The right lung is composed of three lobes. Its boundaries are: The upper lobe, anteriorly, reaches the level of the third or fifth rib, laterally, the fourth rib and posteriorly, the spine of the scapula." He finally, outlines in pencil marks, these boundaries on the body of Anioûta.

"The Enemies" presents an unusual situation. Dr. Kirilov has just lost his little boy from diphtheria and is almost frantic with grief. A stranger wishes him to make a call some distance away. Kirilov naturally refuses but the man insists saying that his wife is quite ill. Finally the doctor accompanies him and after a long journey finds that the wife has eloped with her lover, the husband's departure having been a part of their scheme. From sympathy Kirilov turns to hatred of the one who has caused him such a wildgoose chase. He indignantly spurns the proffered fee, he demands to be taken home at once.

"The Companion" tells of a physician and his frivolous, untruthful spouse. He acquires tuberculosis, as a result of overwork and wishes to secure a divorce and finish his days in peace, even agreeing to appear as the culprit. To this arrangement she will not agree, fearing a loss of social prestige, so her husband goes on stoically to the end.

One of Tchékhov's plays, "The Three Sisters," introduces Dr. Tcheboutykine who is an army surgeon. He concedes his own colossal ignorance, saying that thirty-five years ago he knew something but now he knows nothing and has taken to drink.

Indeed ludicrous is the sanitary commission in "Appropriate Measures." It is composed of five members: the local physician, the inspector of police, two delegates from the city hall and one of the merchants. They are on a tour of inspection. It is found that a certain merchant uses the same knife to cut bread and soap. This upsets one of the commission for his wife buys bread in that shop. The offending merchant claims that for such customers there is a special knife. The police official attempting to appear wise asks if strychnine, meaning trichina, is found in meat.

The short sketch entitled "Much Paper" shows the interminable routine of old-time Russian bureaucracy. The local doctor encounters an epidemic of scarlatina and reports it to the local zemstvo official who in turn writes to the rural school official asking him to take up the matter with the physician since he himself is too busy. The rural educational commissioner is infuriated at this and thinking the doctor is at fault wishes to prefer charges against him but is rebuked by the local chief of police who proposes to try instead the school master since he is the real culprit.

"The Punishment" tells of a drunken wood carver who is caught in a snow storm while taking his wife to a nearby hospital. They lose their way. She is frozen to death and he has a narrow escape but is rescued. Upon waking up in the hospital he finds that his hands and feet no longer obey him since they have been amputated. In spite of this he promises to carve a croquet-set for the doctor.

A peasant boy with an infected arm is the chief character in "The Flight." Having been left at the zemstvo hospital over night he becomes greatly frightened. First he is put next to an old man who coughs all the time. After seeing a corpse removed from the ward he flees wildly and at last arrives home safely.

"On Service" tells of an autopsy on the body of a suicide. "To kill onesself in the zemstvo headquarters, what a lack of tact," exclaims the doctor. "If one wishes to send a bullet into his head why does he not do so at home or in the barn." At dinner after the performance of the autopsy the physician again breaks forth. "He has left a wife and child," he exclaimed. "The neurasthenics and all those with disordered nervous systems, I would forbid to marry. I would deprive them of the right to create others like them. To do so is a crime."

In "The Professor of the Fine Letters" the teacher Hippolyte Hippolytch dies from a facial erysipelas. During his last two days he keeps repeating such schoolroom sentences as these. "The Volga empties into the Caspian Sea. The horses eat grain and hay."

In "Polinnka" we find a clerk trying to sell elastic garters saying that they are recommended by physicians and alleging that they will not arrest the circulation.

The Moscow hospital intern, Koroliov, in "A Case Of Medical Practice," is sent by his chief to see a patient in the country. She proves to be an heiress who leads a dull life and who is continually ailing. Koroliov cheers her up and apparently does quite a bit with his psychotherapy.

"The Journal of an Assistant Bookkeeper" shows human nature when one is looking for the death of his superior so as to advance a step. May 11, 1863. Glôtkine, our bookkeeper, sixty years old, has been taking a mixture of milk and cognac for his cough and as a result he now has delirium tremens. The doctors affirm, with their customary assurance that he will die tomorrow.

I shall finally be book-keeper. The place has already been promised to me. August 3, 1865. Gltôkine still has trouble in his chest. He has again begun to drink milk and cognac. If he dies I shall get his place. I have hopes, but only slight, because delirium tremens, it appears, is not always fatal.

An old woman told me yesterday that my trouble is not enteritis but internal hemorrhoids. It may be so.

June 30, 1867. We read in the papers that cholera has appeared in Arabia. It may come to Russia and then there will be many vacant positions. Perhaps old Glôtkine will die and I shall be book-keeper. The old man is vivacious. To live for such a long time is, in my opinion, reprehensible.

What shall I take for my enteritis? Shall I take absinthe seeds?

January 2, 1870. A dog barked all night in the court of Glôtkine's house. My cook says that is a sure sign and we talked about it until two o'clock this morning. When I am book-keeper I shall buy a racoon coat and a lounging robe. I may even marry. Certainly not a young girl, that is not for one of my age. I shall not marry a widow.

I am going to consult Doctor Botkine about my enteritis. It is said that he is a good physician.

June 4, 1878. It is said that the pest is raging at Vetliannka. Many people are dead as a result. Glôtkine is now drinking vodka and pepper. If the pest gets here I shall surely be book-keeper.

June 4, 1883. Glôtkine is dead. I was with him and I asked his pardon for having so impatiently awaited his death. He generously pardoned me, also with tears in his eyes and advised me to drink an infusion of acorns for my intestinal trouble.

June 7, 1883. Glôtkine was buried yesterday. Alas! His death did not profit me. Oh! Woe to me, unfortunate one. It is not I who am now book-keeper, but Tchalikov. I did not obtain the place, but it was given to a young man who was under the protection of his aunt who is the wife of a general. All my hopes have vanished.

June 10, 1886. Tchalikov's wife has left him. The unfortunate man is in despair. Perhaps he will commit suicide from chagrin. If he does so, I shall be book-keeper. That has been talked of already. Perhaps all hope is not lost: One may live; the time for a racoon coat may not be far off. As to matrimony I have no objection. Why not marry if a good occasion presents itself. It is best to ask advice about it. It is a grave decision.

The porter has advised me to take sublimate for my enteritis. I am going to try it.

Dr. Chelestov is met with in a short sketch entitled "Intrigues." He is on the verge of being tried by his fellows for unethical conduct. The doctor is pictured at home thinking of a defense. He dreams of a vigorous counter attack on his enemies. He will tell of their many and ludicrous errors. Thus one man ruptured his patient's esophagus by his brutal use of a bougie, another tapped a floating kidney mistaking it for an abscess and a third removed a healthy nail from the right foot instead of an ingrown one on the other foot. The secretary of the medical society has as his mistress the wife of the president of that body. The president slyly practices homeopathy and is a spy for the Germans. Chelestov dreams of a complete victory being not only acquitted but also elected president. In that office he promises to clean up the Augean stables and expel those members who opposed him. He will inaugurate much-needed reforms in the medical corps. As Chelestov dreams on complacently he is suddenly awakened by the clock striking seven and he realizes that it is time for him to attend the meeting at which he is to be tried. He attempts to assume an air of disgust mingled with scorn but is unable to mold his features into the desired expression. His visage seems lengthened and silly like that of a lapdog. He even resembles a goose. At last he gives up in disgust and decides to forego the meeting.

Four letters written by Tchékhov can be read with interest. The first one was written March 28, 1886, to his friend Grigorovitch.

> I am a physician and my medical work has so absorbed me that no one is more troubled than I by the proverb which tells of the two hares which one hunts. I give my odd moments to literature, two or three hours daily and a portion of the night, such time as one would devote to a secondary task.

In a letter written to Souvorine, September 11, 1888, Tchékhov says:

> You advise me not to pursue two hares at a time and to abandon the practice

of medicine. I do not know why it is impossible to chase two hares at the same time, even in the strict sense of the expression. I feel more satisfied when I recall that I have two professions and not just one. Medicine is my legitimate spouse and literature is my mistress. When one bores me I pass the night with the other. Even though irregular this is not monotonous and besides neither of them suffers because of my infidelity. If I had no medical work it would be hard to give my thought and liberty of spirit to literature. There is no discipline in me.

Again writing to Souvorine on December 23, 1888, Tchékhov says:

I was hard at work on a story for the *Novoie Vremya*, the other night, when a woman came and asked me to see the poet, Palmin. He had fallen while intoxicated and cut his forehead. I was busy with that drunkard for two hours and was so tired upon arriving home that I became very cross and was unable to write any more that night.

In another letter to Souvorine dated October 19, 1891, we find Tchékhov in a pessimistic mood.

Ah! My friends, how tired I am. If I am to be a physician I ought to have a hospital as well as patients. I should live among the people and not in little Dmitrovsk street. I should also have both a social and a political life, or at least a little of that sort of thing. To live within four walls, without nature, without society, without the country, without health and without appetite, that is not living.

Mention has already been made of Alexis Souvorine. His diary published in Paris three years ago[3] gives some interesting facts about Tchékhov which I shall quote *in extenso*.

September 3, 1896. At Theodosia. Tchékhov arrived here yesterday from Kislovodsk. He told me that he had recently had hemoptysis. His purpose in coming is to witness the performance of his "Sea Gull."

October 17. Today, at the Alexandrine Theatre the performance of "The Sea Gull" took place. It was unsuccessful. Tchékhov was broken hearted. After midnight his sister sought for him everywhere but he could not be found. He suddenly appeared at 2 a.m. Upon being asked where he had been he replied that he had walked the streets and sat down in the park. He added, "I could not remain indifferent to that spectacle. It looks as though I would have no chance in the drama." Tchékhov was much displeased with the actors who were indeed mediocre. His piece was poorly presented. Tchékhov is very proud so he could not easily pass over this reverse.

February 11, 1897. I called on Tolstoi in Petersburg. Referring to "The Sea Gull" he declared that it was an insignificant affair and without merit. He spoke of Tchékhov as follows, "Tchékhov is the most talented Russian writer. Nevertheless 'The Sea Gull' is very bad." I told Tolstoi that Tchékhov would die of chagrin if he knew his opinion of "The Sea Gull." He replied, "If I speak to him about it, I shall do so more moderately and if that displeases him I shall seem astonished."

March 24, 1897. At Moscow. Two days ago as we were about to dine Tchékhov had a profuse hemorrhage from the throat. He asked for ice but did not stay for dinner. Today he returned to his hotel, La Grande Moscovite after remaining two days in bed, here in my quarters. This attack has frightened him very much. He spoke of it thus, "In my case the blood comes from the right lung. The disease manifested itself similarly in my brother and in another relative, both of whom died of tuberculosis."

March 26, 1897. I have returned to Moscow from Petersburg. Between ten and eleven a.m. Doctor Obolensky came and said that Tchékhov had had another hemorrhage at six this morning and that he had been taken from his hotel to the private clinic at Ostroumove. I took dinner with Tchékhov at the clinic. His room number is sixteen, ten units above that in Room Six, as Doctor Obolensky remarked. Tchékhov laughs and jokes as usual and at the same time spits blood into a large glass. When I remarked that I had noticed the breaking up of the ice on the Moskowa his expression changed and he asked, "Has it begun to thaw?" I regretted very much having spoken as I did. It had probably occurred to him that there was a connection between the return of spring and his illness. A few days previously he had declared, "When one treats a peasant afflicted with tuberculosis he always says that there is nothing to do and that he will pass away when the spring waters begin to flow."

March 29. Telegram from Tchékhov. Less blood but am still in an uncertain state. I do not know when I shall leave. Tolstoi has arrived.

July 23, 1897. Tchékhov tells me of his intention to translate Maupassant whom he likes very much. He is sufficiently versed in French to do so.

A few of Tchékhov's thoughts.

Death is cruel, an abominable decapitation.

If death entirely destroys individuality, life does not exist.

Death produces something greater than fear. As we live we do not think of it.

Myself, at least when I am dead I shall know what it is. It is terrifying to become exterminated. You are taken to the cemetery, the others return to drink tea and pronounce hypocritical discourses. It is disgusting to think of all this.

Friendship is a finer thing than love.

I am liked by my friends, they like me and so through me they like one another.

Love makes enemies of those who are smitten with the same woman.

Those in love aspire to possess entirely the woman they love without giving her up to anyone else. They consider as adversaries those who conceive the idea of pleasing their loved one.

Friendship does not know this jealousy. So it is not love which is the finer part of marriage, but friendship.

If the women would give an equal amount of attention to the good looks of men, as the latter do the beauty of women then men would be equally as vain as women. This proves their good sense and intelligence or perhaps better their lack of aesthetic sentiment.

We give our whole heart much more easily than all of our money.

Finally, in order to safeguard fidelity in marriage, it is necessary that a handsome woman should possess much of the great qualities.

Paris, April 27.

Tchékhov is here. He is with me continually.

Tchékhov said that Korolenko had persuaded him to become a candidate for membership in the Association of Writers, saying that he would be easily elected. There were some of the members who opposed Tchékhov because in "The Sea Gull" he had not portrayed his heroes according to radical ideas. How stupid are such people who know as much about literature as pigs do about oranges. And these creatures occupy themselves with the right to judge the illustrious writer.

September 4, 1902.

Along with Orlenev I left for Moscow to visit Tchékhov. I spent two days visiting with him in the most friendly way and discussing literature. He was surprised to know that Gorki was considered as the chief of the socialists. "No, not of the socialists but of the revolution." Gorki's popularity hurt Tchékhov's pride. He said, "Formerly one said; Tchékhov and Potapenko and I survived that juxtaposition. Now they say Tchékhov and Gorki." He evidently wished to add that he would survive the latter. Tchékhov said that in three years more the works of Gorki would no longer be of interest for he would not have subjects for them. He suffers also from tuberculosis but is more robust than Tchékhov.

Dmitri Merejkowsky,[4] a prominent Russian author of the present day, has praised Tchékhov's works in a way which well displays his admiration for his famous countryman. Among other things he says:

> Tchékhov is the direct heir of the great Russian literature. If he has not received the entire heritage, he has at least, in the rôle which has fallen to him, separated the gold from the foreign alloys, and the metal which remains whether great or small in amount, is of such purity that it is unequalled in any of his predecessors, perhaps even greater writers than he, unless it be in Pouchkine. [Merejkowsky states the following further on.] The last artist of the Russian verb is here equal to the first? Tchékhov is more simple than Tourgueniev, he is more simple than Dostoievski, he is more simple than Tolstoi. Tchékhov's simplicity is such that it is sometimes terrifying. In his case simplicity becomes a void, a nothing. He speaks of the sacred and of the most terrible things as though they were ordinary occurrences. He speaks of love and of death as tranquilly as of the best way to drink a glass of vodka while eating a salted mushroom. He is always calm or appears to be so. Tchékhov's description of a storm: "On the left the sky looked as though someone had struck a match which burned with a pale phosphorescent light and then flickered out. Then one heard a dull rumbling as though some one was walking, far away, on a tile roof, probably barefooted." Tchékhov is the great, perhaps even the greatest writer of every-day Russian life. Life and death, these are the two immobile poles in Tchékhov's world. Ennui and discouragement are the chief and in reality the only passions of his heroes. Speaking one day of a description of nature Tchékhov said, "I have recently read a lyceum composition on the subject; describe the sea. The composition contained only four words: The sea is grand. To my notion that was perfect."

Eugène Melchior, Vicomte de Vogüé,[5] a member of the French Academy, has also seen fit to praise Tchékhov as an author, in the *Revue de Deux Mondes*. I quote him in part as follows:

> Monsieur Tchékhov has been able to adjust a style of literature to the taste of the day: the rapid recital, the little tableau of customs quickly sketched. He is interesting because of the variety of his observations, often because of their justice. He describes all classes of society, all of the particulars of provincial life. I believe that I recognize in this composite talent the traces of different educators. At the origin of his literary filiations we find Gogol, the common father, the initiator who first taught him the art of observation and of being able to paint the real life of the people. For Tchékhov as for all of his emulators, Tolstoi has been the master of anatomy who has shown them how to dissect the human heart. If Tchékhov has the advantage over his rivals and predecessors of being more brief, more exact and more clear he perhaps owes it to Maupassant. Tchékhov excells in marking the murderous action of time. His characters are all disgraced whether officers, rural physicians, landed proprietors or what not. Supple and prodigiously fertile he exercises upon a larger scale than Gorki. In his studies of rural life the influence of Tourguenef is apparent. They call to mind the Souvenirs of a Huntsman.
>
> His rich collection of proofs is unfolded before the eyes like a cinematographic reel and I can find no better comparison to characterize his work. The scene is usually laid in the rural districts, sometimes in a small town. Tchékhov's works are much less sombre and less violent than those of Gorki but they leave us

with a much keener impression of inhumanity.

De Vogüé mentions the following of Tchékhov's works as among his best: "The Peasants," "An Easter Night" and "A Duel." Of the plays he prefers "Uncle Vania" saying that "The Sea Gull" is uninteresting and "The Three Sisters" is a cry of Ibsen. He quotes a Russian critic of Tchékhov as follows, "The reader even while paying homage to Tchékhov's talent shudders at seeing such a long procession of sick persons, demi-cadavers and phantom heroes."

Cheinisse,[6] a Russian physician who resided in Paris, has also emphasized the medical imprint in Tchékhov's writings. If medicine was absorbing to Tchékhov it also impressed him because of one's responsibility and he ceased practice after the following incident which was vouched for by his brother.

> In a prescription which he had written during a consultation, Tchékhov forgot to place the comma which marked off the number of grams. Terrified by this mistake, he ran headlong to the home of his patient at midnight. Happily the prescription had not been sent to the druggist. That same year Tchékhov was greatly shocked by the death in the same family of two persons as a result of typhoid fever. This produced such an impression upon him that he removed the physician's plaque from his door. The doctors described by him surpass those of Balzac: they are more human, more real and it is not the least of the merits of the Russian romancer to have presented in its true colors a profession which others who have given it up, as he did, have believed themselves obligated to discredit.

In the great cholera epidemic of 1892 he did not hesitate to abandon his literary work and to take an active part in fighting that dread disease. In that same year A. Ourousof in "La Plume" speaks of him as follows:

> Like Tolstoi he sketches his characters with vigor but without the tendency of Tolstoi to moralize and to preach. In Tchékhov one notes the physician who is interested in tuberculosis as well as in perversities. From Dostoievski he has inherited a taste for the feeble minded but he disguises himself well à la Flaubert. Finally, he is a writer whom the French are very fond of reading especially in literary circles and even the general public.

Cheinisse adds:

> A physician himself, Tchékhov understood thoroughly the kindness and devotion which are required in the daily exercise of our profession. Better than all of the others, medical studies enable one to grasp the essentials of a phenomenon, to at once seize upon the most striking parts of an occurrence and to penetrate into the psychology of a character.

Andre Beaunier in a preface to the French translation of A Murder by Mlle. Claire Ducreux,[7] in 1892, also pays tribute to the Russian writer.

> Anton Tchékhov is himself without any possibility of being confused with anyone else. It is erroneous to see in him only an imitator of our Maupassant. Every human race has its own way of suffering and I know of no writer who has been more successful than Tchékhov, in expressing the Russian melancholy which is a mixture of ennui, pride, fatalism and lassitude. Tchékhov shows the effect of medical training in his writings. Zola is not to be compared to him in his attempts at deciphering things medical.[8]

Tchékhov surely deserves a high rank among the outstanding writers not only of Russia but of all countries. In his chosen field he ranks with the literary luminaries of all times. I trust that this brief sketch may assist in making better known here the writings of this famous colleague.

I desire to express my appreciation to the Librairie Plon, Paris, for permission to reproduce the photographs which appear herewith. They are taken from the works of Tchékhov as translated from the Russian into French by Monsieur Denis Roche and edited by the Librairie Plon.

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HENRY THE EIGHTH

A PSYCHOLOGICAL SURVEY AND A SURGICAL EXPLANATION

By JAMES KEMBLE, CH.M., SYDNEY, F.R.C.S., EDIN & ENG.

LONDON

THE house of Tudor has always been surrounded with an atmosphere of fascination, and no monarch has created a more intense interest in the events of his private life and his personal character than has the eighth Henry. To the medical man this interest is especially absorbing.

A schoolboy wrote: "Henry the Eighth had eight wives and he killed them all."

His store of knowledge was somewhat scanty; but if he sought to conceal its inaccuracy by sanguinary and extravagant exaggeration, we merely smile behind our hands, and silently applaud his boyish bigotry. Still he expressed an impression which endures with many, for years after the period when it is necessary to reproduce prudish and conventional conceptions of history in order to please dictatorial dominies.

He had always heard of Henry as an inhuman monster displaying, throughout his lifetime, a most virulent form of nympholepsy, and capable of almost incredible brutality.

But some, even in their more mature years, regard Henry as the very incarnation of unbridled lechery, striding tyrannically about his court, appropriating first this maid and then that for his bride, then cruelly casting each aside as his whim and fancy changed. They imagine they hear him snarl, under his breath: *Obit anus, abit onus*. Others, with a gesture of wordly generosity, picture him as Bluff King Hal, singing gaily and irresponsibly as he perpetually feasts:

> 'Eat, drink and love! What can the rest avail
> us?
> So said the royal sage, Sardanapalus.'

But as usual, the truth lies in neither extreme.

The questions we are called upon to answer, so often, are:

1. Why should Henry have had such a multiplicity of wives?
2. What circumstances governed his choice of each of them?
3. Why did he treat them so brutally?

While investigating the problems of these extraordinary events of his life, we find ourselves regarding Henry, not only as a man very often more sinned against than sinning; but as one whose actions were usually justified by frank reason.

As for his much-cited crimes, while contemplating the true circumstances of these, we come to apply, in his case, the same principle, which most medical men learn to apply, sooner or later, to the confidences of those of their fellows, whose distress and disease they seek to dispel, namely: "Tout comprendre, c'est tout pardonner."

Now there are certain facts chronicled which, shall we say, are of great diagnostic significance, and from them we can derive some very lucid explanations and interesting conclusions.

These explanations and conclusions follow two main lines, the one psychological, the other surgical.

If we were to put ourselves in the place of his contemporary physician, we should certainly regard many of his actions in the earlier years of his life as the result of psychological urges. The evidence of surgical importance was unfolded gradually, stage by stage, and only when we had observed, with the passing of years, these progressive clinical manifestations, would the true surgical or pathological basis, underlying the seeming vagaries of his life, become evident to us. In the last years of his life, this evidence became so conclusive that, in my judgment, the final diagnosis was amply plain.

We shall, therefore, deal with Henry's life, first from the psychological point of view, then from the surgical.

Now as a boy, Henry undoubtedly possessed exceptional intellectual endowments.

Ambition is a pyrexial disease, which disturbs the youthful tranquility of many of us, and at times transports our minds into a most restless delirium.

But in addition to this, Henry undoubtedly did possess a facile appreciation of feminine charm. When woman is called in to attend the ambition-afflicted youth, she soon dispels the ailment, though sometimes the patient dies.

Not so, however, with Henry.

He is said to have suffered from an Edipus complex. His elder brother, Arthur, was not only the obstacle to his ambition for the throne, but also his rival in love, being affianced, and subsequently married, to Catherine of Aragon. So the Edipus complex in regard to his father and mother is said to have been transferred, by the young Henry, on to his brother and sister-in-law. Arthur dying early of phthisis, Henry, at the age of eighteen, succeeded his father to the throne and married Catherine forthwith.

To my mind this was a perfectly normal match, fired by love and tempered by diplomacy.

Yet the psychologists say he was irresistibly actuated by incestuous desires as the result of this transference of his Edipus complex. Moreover, they explain Henry's desire for his subsequent divorce, on the grounds of his fear that the curse of Heaven was upon his marriage on account of its incestuous nature.

True, Henry did seek his ultimate divorce from Catherine on the plea that the marriage was incestuous and therefore void; but this was merely a convenient excuse. It was not mere psychological distress or religious scruple, that made a divorce imperative. There were reasons far more substantial.

The House of Tudor required a male heir to secure the succession to the throne.

Catherine, at the age of forty-two, in 1527, ceased to menstruate. Simultaneously, Henry, always a man of action, having lived happily and, shall we say, hopefully, with his wife for eighteen years, decided that his national duty now demanded his taking a new and younger wife. Catherine, poor lady, had done her best. She had been, practically the whole of her child-bearing life, "in that condition in which every wife should be, who loves her lord." But miscarriage after miscarriage, and stillbirth after stillbirth, had blighted all her efforts. With the arrival of menopause, she found herself with but one living child, and that a girl, Mary.

It was not concupiscence that urged Henry to seek a new wife. In those days, one could, so it seems, trespass with impunity on extra-uxorial pastures for a little amorous browsing, if one chose. Henry had had, in fact, a natural son, afterwards Duke of Richmond, by one Elizabeth Blount, and had contemplated setting him up as his heir, if no further son was forthcoming. But to have a legitimate heir he must be formally divorced and remarried.

So in May, 1533, Catherine's divorce was, at last, accomplished. But already, four months previously, Henry had married Anne Boleyn. She was already pregnant, and the prospective babe was, according to the astrologers, to be a son.

The stars changed in their courses, and a daughter, afterwards Queen Elizabeth, was born. Then Anne began to display the same propensity for miscarriage that Catherine had done and again Henry's hope for a male heir receded.

The psychologists say it was the same incestuous attractiveness that governed Henry's choice of Anne, and later, indeed, also of his third wife, Jane Seymour, who was a distant blood relation, one incestuous marriage giving place to another. In the case of Anne, he had been intimate with both her mother and her elder sister, Mary; while she herself was said to have had incestuous relations with her own brother, Lord Rocheford.

We are told that Henry, recognizing these circumstances, came to fear that Heaven was making him pay for his crimes of incest the penalty of infertility. Hence the necessity for another wife.

But by now our medical minds are beginning to suspect pathological rather than spiritual reasons for these repeated miscarriages.

Poor Henry, however, in his despair and in his ignorance of pathology, determined to try one more spouse, in his endeavor to do his duty by the nation and the house of Tudor. And so Anne must go. Her nomadic cupidity had become so notorious, since the birth of Elizabeth, her daughter, that it provided ample grounds for bringing her to the executioner's block.

Here we might digress for a moment, in our investigation of Henry, to defend the honor of Elizabeth.

Dean Inge has cast doubt on her paternity. We can forgive him his ignorance of obstetrics, if not his ungallantry, for the cleric's function in these matters ends with the marriage ceremony, and there the doctor's begins.

Elizabeth was born on September 7, 1533. If she was a full-time babe, "the first day of the last period" was December 1, 1532. Conception, therefore, certainly occurred sometime after December 7. Henry and Anne were married on January 25, 1533, exactly seven weeks later. Now Anne had, very painstakingly and very shrewdly, repulsed Henry's advances for six long years, refusing to be his mistress, lest, thereby, she jeopardize her chances of being his Queen. Is it, then, so much as remotely probable, not to say possible, that she should risk dalliance with another lover, during those last few weeks, immediately prior to her marriage, which meant the crowning of her life's ambition?

She had everything to lose and nothing to gain by such an indiscretion.

Moreover, we know that just before her marriage, when her position as

Queen was assured, she did surrender her virtuous scruples to Henry.

Elizabeth was therefore the daughter of Henry the Eighth and Anne Boleyn as surely as it is possible for anybody to be sure of anything in these matters. Conceived out of wedlock, she was, however, born beneath its benediction. If Elizabeth was at all premature, the evidence is even more convincing.

And now to return to Henry.

After Anne Boleyn followed Jane Seymour, Anne of Cleves, Catherine Howard and Catherine Parr, all in the course of seven years.

Jane produced the long-sought son and heir. She died immediately, harsh unrelenting Fate, from puerperal fever. Henry, showing that it was his desire for a son, and not his concupiscence, which prompted his polygamy, elicited no further wish for a new wife. He had no longer any personal interest in the "female of the species."

After two and a half years of widowerhood, it was Cromwell who suggested that Henry should marry Anne of Cleves. Quite apathetically, he agreed. She proved, however, so grossly unattractive and unintelligent, that he firmly but graciously repudiated the marriage.

"After the sundry troubles of mind that had happened to him by marriage," Henry was not overanxious to heed the importunacy of his councillors for a further espousal. However, Catherine Howard proved an antidote to the dose of disappointment, administered by his erstwhile bride.

True, he permitted, in the end, this same Catherine to be put on her trial, but others than he were the prime movers in this. He had been sincerely fond of her. He forgave her her many amorous extra-marital indulgences. These, however, had become so flagrant that, at her trial, confessing her guilt she was condemned to death, by some of those same councillors who had so lately proposed her marriage. All the evidence goes to show that, not only did Henry take no active part in Catherine Howard's fall, but that he actually became distraught, when he perceived the course events had taken. "He seems very old and gray since the mishap to his last Queen," wrote one chronicler.

It has been said that a perfect wife should be a young man's mistress, the middle-aged man's companion, and the old man's nurse. Henry, not being fortunate enough to find this concatenation of ideals all in one woman, sought, one may think, to supply his changing requirements by a sequence of wives. The qualifications required of his first three wives were that, as suitable mistresses, they should be potential mothers of a male heir to the thrown. This object achieved, and aggrieved, poor man, at the very tragic death of his third wife, Jane, in giving birth to that same heir, he married Anne of Cleves and Catherine Howard in search of companionship. Both failed him. When in his premature old age, the ideal nurse, the twice-widowed Catherine Parr, was sent by Providence to tend him to the end.

Before completing the psychological history, as it were, of our case, and proceeding to the physical examination of his lesions, there remains the third and last question, that of his cruelty to his wives.

The Tudors have been to me, for many years past, a source of most interesting study and pleasurable meditation. And it is now my considered judgment that, with the exception of Anne Boleyn, Henry showed every one of his wives, if not always love, certainly as kindly a consideration and as just a treatment as the dictates of his duty, as a ruler and as the father of a royal line, permitted, and overlooked according to his lights, their sins of omission and commission with far more toleration than many men less chivalrous would have done. Catherine of Aragon was his wife for twenty-four years, so that time alone was ample testimony to his constancy. Jane Seymour died in childbirth and there is copious evidence of his sincere grief at her loss. Anne of Cleves, bovine and dull as ill-becomes a queen, was foisted on to him under false pretences. The marriage was never consummated. He repudiated the contract, however, so graciously and provided for her so handsomely, that she retained her regard for him till she died a natural death in the Palace of Chelsea. When he married Catherine Howard, Henry was, perhaps, fonder of her than of any other of his previous wives, and he was, as we have seen very sorely and genuinely distressed at her death. Catherine Parr nursed and mothered him, as surely only a woman, who is much loved and very loving, could.

So much for the psychological motives in Henry's marriages, the factors governing the choice of his wives, and the explanations of the attitudes he displayed towards each of them. Now for the surgical or pathological basis underlying the tragedy and explaining many of the so-called crimes of his life.

Succinctly, I think it can be amply proved that the whole of Henry's life was governed, and indeed a great part of the subsequent history of England changed, by the dictates of a Spirochete, which gained access to his royal person, in his early youth.

Syphilis was brought to Europe from America, we are told by Columbus, or rather, should I say, by Columbus's crew, somewhere about 1492. It spread like a plague, at once. Whether this be true or not, at least we know there was no evidence of a syphilitic taint in Henry's heredity. His parents, Henry VII and Elizabeth of York, had quite a large family. The young Henry, himself, was unusually handsome, tall, fair-haired, and already of regal bearing according to Erasmus, strong and athletic. He was, in fact, distinguished by his robust good health and exceptional mental talent. At the age of eighteen he married Catherine of Aragon who, seven months later, bore a stillborn daughter. Then followed three more stillbirths or children who died immediately after birth. Next a daughter who was subsequently to reign as "Bloody Mary," was born. As Mary grew up the evidence of congenital syphilis became all too plain. Her face, prematurely old and scarred, her thin patchy hair, her "square head" and protruding forehead, if not actual frontal bosses, all suggest inherited lues. Sir Clifford Allbutt puts her extremely bad sight down to interstitial keratitis. It is probable she had a miscarriage soon after her marriage to Philip II of Spain, who incidentally was married four times. Moreover her sudden death, while at Mass, at the early age of forty-two, was probably consequent upon arterial degeneration and a high blood pressure, the outcome of syphilis.

After the birth of Mary, Catherine suffered several miscarriages and then one further stillbirth.

His next wife, Anne Boleyn, after bearing Elizabeth, showed the same disposition to miscarriage and stillbirth.

Jane Seymour died before any such misfortunes could befall her.

Already, having obtained such a history of miscarriage, the modern surgeon would have directed that a Wassermann test be done.

The marriage of Anne of Cleves was never consummated. She alone, of Henry's wives would I have expected to have given a negative blood test for syphilis.

During the period when Catherine Howard was his wife, he being forty-nine to fifty years of age, his physical decay was advancing rapidly. The "violent ulcer," also described as "the old fistula," in his leg, was now giving him much pain, and when it was "closed" the pain was even worse and he developed a fever. Now the chief causes of chronic ulcers of the leg are varicose veins and syphilis. Ulcers due to varicose veins even of large size and long standing, are often remarkably painless. They are also far less common in men than in women. On the other hand syphilitic ulcers are often associated with a similar disease of the bones of the leg, which causes pain. If pyogenic infection is admitted through the ulcer, a chronic osteomyelitis is superadded, with possibly the formation of sequestra. There is aggravation of the pain and the development of fever when the "sinus is closed." In February, 1541, and on several occasions subsequently up to the time of his death, Henry suffered from grave attacks of fever. Ague has been suggested as the cause of the fever; but this is put out of court by the fact that there was never at any time, any mention of rigors. Furthermore, these attacks have been variously described as "lingering fever" and "languishing fever," and whatever such terms may indicate, they certainly do not suggest the intermittent febrile attacks of malaria.

When Anne of Cleves, in 1543, heard of the marriage of Catherine Parr to the King, she remarked, "A fine burthen Madam Catherine has taken on herself." And also "The King was so stout, that such a man had never been seen. Three of the biggest men that could be found, could get inside his doublet." Apparently syphilis, spirits and sepsis were taking their toll on his cardiovascular system. Valvular disease, atheroma, and arteriosclerosis were causing "dropsy" of the legs, ascites, and consequent inability to get about. Due to his rising blood pressure he began to suffer from very severe headaches, which prevented him from attending to his affairs for days together. His corpulence was aggravated by the development of cirrhosis.

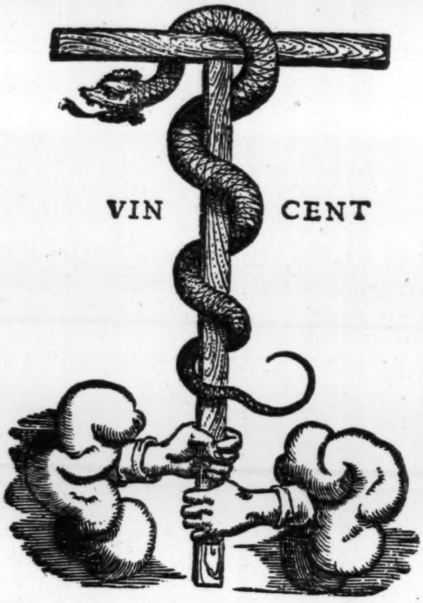
That he did not die in uremic coma, as has been suggested, is clear from the description of his death. He retained his memory, we are told, to the end, although he was already grown "speechless." In the uremic, on the other hand, "memory" goes early, and mental apathy lapses into unconsciousness and coma some time before death arrives.

As I picture him, on his deathbed, Henry died primarily from heart failure. Just as his life had been ruled by his luetic infection, so his death was occasioned by its ravages upon his heart and vessels.

We hate to have our early ideals shattered; to have to alter our fixed ideas of justice. We are loathe to relinquish those traditional examples of wickedness, which it has eased our consciences to look upon as criteria of vice, in contrast with which, we ourselves are very paragons of virtue. But when Reason is the iconoclast, and Fact his weighty weapon, the gods all crumble in the musty temples of traditional prudery. We shall turn to worship at the altar of enlightened truth.

The story of Henry's brutality is a myth. The plurality of his marriages was the outcome of his sincere consciousness of his duty, as the father of a royal line of kings. The tragedy of his life was the work of a Spirochete.

Perhaps I may trace, one day, its results on the whole of our history since.



TUBERCULOSIS AND GENIUS:
VOLTAIRE

By L. J. MOORMAN, M.D.

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IN the contemplation of genius as related to world affairs there is a fascinating romance. Granting that the toxines of tuberculosis, combined with physical limitations, may have a quickening influence upon genius, we must admit that its bent and quality are as obscure as its origin. One hundred years before the time of Voltaire, a tuberculous cardinal with singular genius sought to establish the security of state through the absolute supremacy of kings. Richelieu's success in this respect is one of the outstanding events of French history. The reign of Louis XIV typifies the full fruition of his policy. While this profligate soul, suffering from premature senility and the surfeit of royalty, sought to mitigate his crimes through the good offices of his Jesuit confessors, there came into the world a latent genius who, under the activating influence of some strange, sustained stimulus, perhaps spes phthisica, was destined to break the power of Richelieu's policy and bring to an end the reign of bigots and tyrants.

Voltaire was born November 21, 1694. He was the son of François Arouet and Margaret d'Aumard. There seems to be no history of previous outcroppings of unusual mental qualities among his plain plodding people, no tap-root of genius in the family tree. His father, a Parisian notary, is described as being "meager, stoop-shouldered and thin-lipped," rather suggestive of a tuberculous type. His mother was thirty-three at the time of his birth and died at forty. Little is known of her except that she was a frail, sickly woman, having lost two children before the birth of Voltaire, and transmitting to him only a bare frame of skin and bones with a wizened, wrinkled expression, yet with eyes of penetrating luster suggestive of that latent genius destined to rob the priesthood of misdirected power and to wrest from kings and potentates unwarranted privileges. Though his infancy was fraught with all the discomforts of frailty he emerged from the cradle with a limited degree of physical competency, bearing certain marks of battle which strongly suggest tuberculosis as the contending agency. Strange coincidence that this plain, physically undersized, mentally mediocre woman, being unable to transmit to her son a strong body, should endow him with a mental capacity which ultimately stamped him as one of the most extraordinary of all men. All available evidence indicates that from the time of Voltaire's birth his mother's health progressively declined until the time of her death when he was only seven years of age.

Intimate daily contact during infancy and early childhood with a mother evidently tuberculous may have had much to do with Voltaire's perennial frailty. Such contact often leads to premature death, but occasionally as in Voltaire's case, confers a certain degree of immunity leaving a mummied crucible where the fires of genius may burn with an effulgence not often seen in the non-tuberculous.

Precocious in every respect except in growth and strength of body, Voltaire discussed matters of state and church with his godfather, the Abbé de Chateauneuf. The Abbé apparently encouraged the boy to be a free thinker with nonchalant disregard for authority. When yet very young Voltaire wrote verse which the Abbé displayed with pride. His father received a state appointment and while he had become well-to-do, he did not have time to look after the education of his son. So the direction of this penetrating mind remained in the hands of the broadminded, worldly-wise Abbé.

When the boy was ten years of age, the Abbé suggested that he be sent to the Jesuit College of Louis the Great, named in honor of Louis XIV, where he says, "I learnt here little besides Latin and nonsense." It seems that he remained in this school seven years. This must have been a galling experience since he was not of the nobility and consequently denied all the favors and privileges which royalty had provided for those of noble birth. In addition his restless young spirit had already by nature and education learned to resent the authority of the Church.

The austere atmosphere of this Jesuit college was colored to some extent by the presence of his genius. In secret and in council, Jesuit Fathers having recognized its transcendent quality, speculated with alternating hope and despair as to whether it could be molded for the support and preservation of the Church or whether it would ruthlessly crash the doors so skilfully barred by long established dogma. The Fathers were constantly fretted by the flexibility of his scintillating mind, the wizardry of his words and the searching flash of his unfaltering eyes. Whether or not he possessed a full consciousness of his mental acumen no one knows, but it seems that he was quite aware of his limitations as attested by his own statement:

> As early as my twelfth year I was aware of the prodigious number of things for which I had no talent. I knew that my organism was not formed to go very far in mathematics. I have proved that I have no capacity for music. God has said to each man "Thus far shalt thou go and no further." I had some natural power to acquire modern languages, none for the Oriental. We cannot do all things. [Again he writes with reference to his physical limitations]. Every one jumps and amuses himself in his own fashion.

His physical handicaps were quite obvious, yet fully compensated for by his mental attainments and his charming personality. He made close friends in college both among his teachers and his fellow pupils. While still a pupil his social technique was perfected; he found himself at ease with people in all walks of life.

Here is a good example of the influence of enforced physical inactivity. Voltaire, fully conscious of his inability to run with the crowd, finds companionship in books and with the Fathers discussing history, poetry and art as well as current events. The Jesuit Fathers were masters of classical literature and they excelled in the art of teaching. Whatever else may be said, we owe them a debt of gratitude for receiving, preserving and transmitting the intellectual treasures coming down to us through generations of human endeavor.

Voltaire's father wanted him to be a lawyer but Voltaire was determined to be a poet. Genius seems never to be captured and controlled through parental influences. It takes its appointed course in spite of all obstacles, even at the threat of disinheritance. He did submit to his father's entreaties and attended law school in Paris for two years, but probably with no idea of becoming a lawyer. He writes a play and displays little interest in law. After his first love affair which ultimately fails, he writes "Love is the strongest of all passions because it attacks at once the head, the heart and the body."

Voltaire had been persuaded to serve as apprentice in the law office of M. Alian, but he continued to write poetry which, with inattention to his duties and his late hours, led to his dismissal. His father was furious and his wrath was stayed only by the fact that Voltaire "was competing for a prize offered for the best poem praising the king's generosity in building a new choir in the Cathedral of Notre Dame." Probably through favoritism the prize was awarded the Abbé du Jarri. Voltaire had failed; his father was again disappointed and later infuriated by the ridicule heaped upon Jarri and La Motte (the latter having represented the Academy in awarding the prize) through the stinging mockery of Voltaire's poems. Arouet, realizing that this fearless retaliation might result not only in his son's exile but in his own dismissal from the Chamber of Accounts, was on the verge of disinheriting his son; however, he was again reconciled through an unexpected but timely proposal of a former schoolmate of Voltaire and nephew of Louis Urbain de Caumartin, Marquis de Saint-Ange. Under this proposal Voltaire was to take up his residence in the Chateau de Saint-Ange where he would continue the study of law under this aged magistrate whose reputation was well known to Arouet. A happy truce, this, between father and son. Again Arouet cherished the hope that his young son under such favorable influences might ultimately accept law as his vocation. However, Voltaire once more succeeded in freeing himself from the noose designed to drag him into the profession of law and deftly delved into the encyclopediac brain of the renowned Marquis for historical facts and fancies later to be used in his "Age of Louis xiv" and his "Henriade."

Voltaire returned to Paris shortly before the death of Louis xiv. The horrible revelations occasioned by the death of this vainglorious monarch and the revision of court policies which resulted proved a source of great satisfaction to him. After leaving Saint-Ange he clashed with his father and declared his right to live his own life in his own way. St. Francis of Assisi had thrown his clothes at his father's feet with the significant retort, "I can now say 'My Father who art in Heaven,'" in order that he might reform the world through his doctrine of gentleness, love and peace. Voltaire declared his father's domination at an end in order that he might bring about a similar reform through sarcasm, satire and mockery. He had finished his "Oedipus" and was determined to have the play produced. He appealed to the Duke of Orleans but he could not be interested in it. The theme of Voltaire's tragedy may have seemed like an indictment against the Duke's own dissolute life. Undaunted by this failure, Voltaire decided to approach the Duchesse de Maine through mutual friends. Feeling that the Regency had been unjustly wrenched from the expectant hands of the Duc de Maine, she was quite prepared to encourage Voltaire provided he would employ his satirical art against the dissipated Duke of Orleans. His derisive lampoons are thrown in with those coming from other perhaps better known but less powerful poets in the employ of the designing Duchess. The unerring aim of his sharp pointed satire singled him out for exile in the dull manufacturing town of Tulle, accompanied by this retort from the Regent, "Let this little Arouet see what inspiration he can derive for his epigrams and verses from tan-yards."

Parents, no matter how dull, always possess one trait which belongs to genius, inconsistency. So it was that his lately outraged father came to his assistance, changing the exile from the tan-yards of Tulle to the home of relatives in Sulle-on-the-Loire. With the boy presumably securely domiciled with humble relatives, removed from the despoiling influences of the nobility, the father went about his business with a flattering sense of false security. He had unintentionally yet skilfully set the stage for further filial inconstancy and a new flight of genius through the restlessness of this indomitable spirit which invariably vaulted all restrictions. In Sully-on-the-Loire he finds the Duke of Sully, a friend of the Marquis de Saint-Ange. With the charms of a duke's chateau at hand, he was not content to spend his time in the humble abode of his well-meaning relatives. He soon finds himself at home in palatial halls among books and pictures where he gathers further material for his "Henriade" and exchanges courtesies with courtiers and fair ladies.

In spite of all the intellectual and social advantages which Voltaire found at Sully-on-the-Loire he was soon fretted by the thought of exile. After showering upon the Regent one complimentary poem after another Voltaire was permitted to return to Paris. The great joy experienced by this release from exile found no response in the heart of his father. The latter believed that Voltaire was on the road to ruin because of the intoxicating effects of his literary success and his reception by those who recognized the exceptional qualities of his creative mind. The boy's genius was running far ahead of his father's faltering comprehension which found its diameters definitely fixed by mental mediocrity.

Voltaire's genius accurately appraised the evils of his day and made him keenly aware of the needless degradation and suffering occasioned by the oppression of the Church and the arrogance and corruption of those in political power. He deftly measured the influences which through their converging forces culminated in the intolerable social conditions which constituted his environment. With a courage quite equal to his indomitable genius he set himself the stupendous task of breaking down the barriers fixed by religious intolerance and the tyranny of kings. When one contemplates the accredited accounts of his ill-health and his frail form attested to by his portraits, the scope of his mental activities, the unprecedented industry and expenditure of energy can be explained only through the release of his secondary personality by means of some subtle stimulus. No doubt tuberculosis set the stage for this exceptional performer and operated as an important animating factor in his daring dramatic career. From birth through early childhood he was not expected to live; from adolescence to old age he worked with frenzied energy because death threatened to rob him of opportunity. It is said that Voltaire considered the "waste of time the most fatal extravagance of which one can be guilty."

Having spurned the shelter of his father's roof he now resided in a Paris lodging house. Undaunted by his recent exile and his disappointment in the promises of the Duchesse de Maine, he spent much of his time in attempts to bring about the production of his "Oedipus." All this industry, with certain knowledge of the fact that success might mean either exile or the Bastille, was characteristic of Voltaire's genius.

In the meantime the unscrupulous Duchess de Maine, bent on revenge against the Regent, kept the pot boiling with intrigue and conspiracy. The activity of her hireling poets again brought Voltaire under suspicion. Finally there appeared in Paris two stinging satires, scoring the Regent and his rule. "Puero Regnante" and the "I Have Seen" were considered of such grave moment that the crafty Captain Beauregard, one of the Regent's spies, was commissioned to search for the author. The task proved to be much more difficult than Beauregard suspected. Being unable to identify the writer, fearing to report failure and knowing the manifest skill displayed in the composition of these invectives would make Voltaire an easy victim, Beauregard, with meager circumstantial evidence, made the fatal report which resulted in Voltaire's unjust imprisonment in the Bastille where he remained for eleven months. Imagine the picture: Voltaire's pinched features, shrunken form, stooped shoulders and fleshless limbs, a faint silhouette in the dim depths of his octagonal cell with earth and sky obscured by the grim artifices of prison builders. For the moment his mental and physical configuration must have harmonized with the deathlike silence and utter seclusion, blending with the thought that behind the heavy doors which shut him in more than one of the King's prisoners had been forgotten while old age, unkempt, crept upon them.

Voltaire was to be spared this awful fate through his glorious heritage, a flaming genius which, having dragged his frail body through a quarter of a century, would now fortify it against the usual inroads of undeserved prison life. He soon realized that incarceration of his body placed no shackles upon his mind. He evolved plans for his release and awaited opportunities for their execution; he read Virgil and Homer; his poem "La Bastille" was conceived, matured and allowed to slip from the point of his versatile pen; according to tradition the "Henriade" took on visible form between the lines of his Homer.

Finally, through the confession of LeBrun, author of the "I Have Seen," the intercession of friends and the influence of his father, the Regent ordered that he "be set at liberty and relegated to Chatenay, near Sceaux, where his father, who has a country house there, offers to take charge of him." This was April 10, 1718. In October, through the influence of his pen and the winsome wit of his interviews with the Regent, he was given permission to return to Paris.

This was a coveted privilege. "The Oedipus" could not be produced at Chatenay. In November the long deferred initial performance was assured in Paris. Its enthusiastic reception fully justified the confidence which had prompted Voltaire's sustained perseverance. His reputation was established. Even the Regent, in giving his approval for the publication of the play, pronounced Voltaire a worthy successor of Corneille and Racine, augmenting his avowed sanction with one thousand crowns and a gold medal. "The Oedipus" achieved a popularity unheard of before in the history of the French Stage. This success was not wholly due to exceptional merits, but no doubt partly to the fact that the play artfully presented truths which had long found a secret abiding place in the hearts of the people who knew that to give them expression meant imprisonment or death. Only Voltaire dared to make merry at the expense of Royalty and the Church.

Encouraged by the success of "The Oedipus" he seeks permission to print the "Henriade." The Regent refuses because of its more direct attack upon the Church. "Artemire," his second play, fails; conscious of failure, weakened by fever, between coughing and criticism, he throws the "Henriade" into the fire. The now historic French epic was recovered by the deft hands of his friend, Henault. Evidently tuberculosis was in the ascendency at this time but soon he was in better spirits following his usual round of gayeties.

There seems to be no recorded evidence of Voltaire's appreciation of his father's continued solicitation; however, he now hurries to his father's death-bed to find that his will provides certain deductions because of indebtedness incurred through various attempts to extricate his son from exile and prison, also restrictions because of a conviction that he could never be trusted to handle an estate. However, faithfully inconsistent to the last, this disappointed father provides posthumous protection for his son by authorizing the trustee to change the will in the boy's behalf in case he should, in the course of time, conform to the ordinary conventions of life and establish his economic competency.

It was four years before Voltaire could hope to profit by the settlement of his father's estate. Apparently at this time Voltaire decided that for him poetry and poverty should not be synonymous and his versatile mind turned to money-making. His genius was remarkable in that it did not drive blindly at its object without regard for future eventualities. He saved and invested wisely, especially abroad, where his hostile government could not lay avaricious hands upon his savings and where they would be available for use when exile was forced upon him.

Being unable to meet the demands of the censor with his "Henriade," Voltaire takes the manuscript which a short time ago was consigned to the fire, and brings out a secret edition in Rouen which is smuggled into Paris. Its success was prompt though its distribution was forbidden. The same hungry crowd that welcomed the "Oedipus," famished by intolerance, eagerly read it behind locked doors. This tribute from the diary of Marais expresses the common sentiment: "I have read it. It is a wonderful work, a masterpiece of the mind as beautiful as Virgil. Behold our language in possession of an epic poem."

Now comes the encounter with the Chevalier de Rohan over Adrienne Lecouvreur who played the leading part in Voltaire's latest tragedy. Suffice it to say that while the Chevalier with his name and money could not buy the famous actress or ward off Voltaire's mockery, he did succeed in having Voltaire clandestinely beaten, arrested and again committed to the Bastille. Through the power of his pen Voltaire pictures the injustice of his imprisonment and requests the privilege of going to England. In fifteen days it was ordered that he be conducted to Calais where he should embark for England. It is said that upon his release he issued this significant warning, "I have no sceptre but I have a pen."

England proved a revelation. He was amazed to find almost universal personal freedom. He saw Newton buried like a king and thrilled at the recognition accorded science. He promptly observed the honors bestowed upon those in possession of superior intellect, many of them having been rewarded with official appointments. His mind had reached a stage of maturity and was ready for a crystallization of policy. There may be a certain amount of truth in the saying that "Voltaire came to England a poet and left a philosopher."

Though he speaks of his stay in England as being "quite given over to the pleasures of friendship and indolence," it proved to be a most productive period. He soon mastered the English language and did much writing in both French and English; through adroit advertising he prepared the way for the profitable production of a complete edition of the "Henriade" which was dedicated to Queen Caroline. His philosophical or English letters constituted a powerful indictment against Church and King. These alone make good the threat, "I have a pen." After three years he returned to Paris where premature publication of his "For And Against" and his letters make it necessary for him to flee. The English letters were publicly burned and a "lettre de cachet" was issued for his arrest. He was not to be found. Madame du Chatelet offered him a deserted thirteenth century chateau near the border provided he will spend forty thousand francs for its repair. Thus he begins his long stay at Cirey and his interesting relationship with Madame du Chatelet. While the "heart and body" phase of this relationship is intriguing, our subject is genius; we must be content with a brief recognition of the intellectual phase of this affinity. Here Voltaire equipped a laboratory and studied science with no perceptible interruption of his pen. Here also began his friendship with Frederick the Great through a long letter from the Prince of Prussia praising his literary genius.

Soon Voltaire is permitted to return to Paris and ultimately he is made historiographer of France and obtains brief court favor. Through a period of sixteen years he retains his relationship with Madame du Chatelet, spending most of his time in her presence, literally working feverishly at his science and with his pen, having multiple exacerbations and recessions of his disease with little influence on his capacity for work except an apparent excitation of his creative powers during the exacerbations. She was his faithful confederate in all his attempts to gain royal favor and to secure a seat in the academy; she was equally faithful in her censorship of his numerous and dangerous literary productions with hope of keeping him out of trouble. A jealousy developed between her and Frederick the Great which, through Voltaire's loyalty to Madame du Chatelet, delayed his visit to the court of his royal friend twelve or fourteen years. At her death he was prostrated. Successive revelations during the last months of her life and at the time of her death having to do with the "heart and body" and calculated to cause great disappointment, now combined with his genuine grief were sufficient to account for the succeeding profound mental depression. This in turn accentuated the low physical ebb which in all probability led to new phthisical inroads. We now find him in Paris occupying pinched quarters where, during the nocturnal escapades of his invalidism, he tumbles over books and unused laboratory equipment only to be rescued, cold and deathlike, by his faithful secretary, Longchamp.

Finally, stimulated by criticism and conspiracy on the part of his enemies, he returns to his faithful panacea, work. Soon he is better, but always believing death to be near, he is now possessed with a desire to visit Frederick. There may have been reasons other than friendship. Havens beyond the domains of France were quite necessary in Voltaire's career. Again he has attacked the Church; going to Prussia may be safer than remaining in Paris. Although his enemies may count it a repudiation of country, he decides to go. There is no space for a report of the interesting correspondence his plans evoked, but the following is sufficient to reveal its trend. Voltaire writes, "Sire, you will see an invalid, a victim of melancholy." Frederick: "You will be received as Virgil of this age." Apparently his going displeased all France, his friends included.

Finally he bids farewell to his widowed niece, Madame Denis, who keeps house for him and opposes his going; he commits his business affairs to Longchamp and departs with a heavy heart only to have his spirits fully revived by the royal reception accorded him at the court of his friend Frederick. Conscious of the unfavorable reaction caused by his leaving France and influenced by Frederick's lavish friendship and the honor bestowed upon him by the Prussian Court, he decides to remain in Prussia and writes for Madame Denis. His niece refuses to come. Apparently with all the accuracy of feminine instinct, she senses trouble and suggests the impossibility of lasting friendship between this trenchant knight of the pen and the powerful king of Prussia. Voltaire remains; he spends his days in luxury writing at will and correcting the king's French verses. He is foremost among the king's friends, apparently unmindful of the fact that jealousy and intrigue are among the indigenous evils of royalty and that while kings may be poets and philosophers, they never cease to be human and never abrogate the kingly power.

The fates are at work. The king's poet, D'Arnaud, conspires with Frenon in Paris in the printing of insulting things about Voltaire. Voltaire, yielding to his money-making propensities, speculates in depreciated paper money in Saxony. Since this proved to be contrary to royal decree, the king was furious. Voltaire was a prisoner in the king's palace. Later there was a tentative truce between the two; literary courtesies and services were exchanged and Voltaire's "Age of Louis xiv" was completed and its publication proved a great success. While receiving the king's congratulations he also hears of the king's designs through LaMettrie, the Court Physician, who quotes Frederick as follows: "I shall want him a year longer at the outside; one squeezes the orange and throws away the peel." Voltaire's presence in Prussia had aroused the jealousy of Maupertius, the king's mathematician and president of the Academy of Science. A controversy arose between them which ultimately caused the king to come to the rescue of Maupertuis in order to save the reputation of the President of the Academy. Voltaire had not only failed to take into account the inevitable court jealousies, but he had failed to allow for his own impulsive urge to fight with the pen. Now, conscious of the fact that he is nearing the "orange peel" stage, having already admitted that he should flee the king's cruel designs, he yields to the insatiate desire to mould his powerful mockery into the "Diatribe of Dr. Akakia," thus lighting the fires of his genius under the writhing form of the Academy president. Voltaire now multiplies his offense by securing the royal permit to publish a defense of Bolingbroke and using it for the printing of the "Diatribe." The king is outraged; Voltaire is again a prisoner cunningly devising stories of theft of the manuscript and of its printing without his knowledge.

By order of the king, all copies of the "Diatribe" were confiscated to be burned in the street, but not all were burned. In anticipation of this, Voltaire had arranged a simultaneous edition in Leipsic. In a few days it was again on sale in Berlin. The king in his fury sends for Voltaire to sign a pledge in the hope of robbing him of the power of his pen. Voltaire refuses to sign; the king finally releases him with the threat of a fine in case of further misdemeanor. He writes to Madame Denis, "I am very well aware that the orange has been squeezed. As I do not possess here below a hundred and fifty thousand soldiers, I can not pretend to make war. My only plan is to desert honorably, to take care of my health, to see you again and forget this three years' nightmare."

Voltaire now returns his decorations and in writing begs permission to go, making ill-health his excuse. Frederick admits ill-health but implores Voltaire to remain. There seems to have been a reconciliation but it was short-lived.

A few weeks pass and one bright morning Voltaire and Frederick stand face to face on the parade ground where the king was reviewing his regiment, gathering strength for war. Voltaire, pale and pitiably worn, looked as though he might soon surrender to the enemy within. Frederick knew why he had come and perhaps for a moment friendship usurped the throne and peace supplanted preparation for war. Voltaire was permitted to go but while still in Prussia he received an insulting note from the President of the Academy threatening physical violence if he dared to further employ his pen against him. The sparks fly, the pen is plied, a supplement to the "Diatribe" is published.

Voltaire is arrested at Frankfort; his decorations and his personal belongings are taken from him. Madame

Denis, who had met him there, was also locked in a separate room where the king's guard heaped insults upon her. Twenty-five days of this humiliation passed while the sceptre reigned. Voltaire was reported as looking "like a skeleton," but the king was relentless. Writing his sister, he says, "Men are broken upon the wheel who deserve it less than he." Finally release was granted but probably not until the king had the satisfaction of knowing that Voltaire would not be permitted to return to France. Louis was likewise relentless. Voltaire, physically miserable, follows the borders of his beloved land, hoping a change of court policy may make it safe for him in France, but finally despairing, he goes to Switzerland. In the meantime, Frederick at Sans-Souci, where for fourteen years he coveted the privilege of paying homage to Voltaire, wrote vehemently and at length against his former friend, "detested in Paris, he is burned in Berlin, cursed in Rome."

In spite of all Voltaire's mental activities, his physical limitations and enforced political restraints he had found time to look after his investments; his program had included both poetry and profit. He now invests in four estates thereby contributing to the genuineness of his welcome.

Finally at Ferney came the opportunity for twenty years of comparative safety where he could write without fear. Madame Denis came, the house was kept, the environment delighted him. He became farmer, manufacturer and merchant, and established a peaceful colony after the lines of his idealistic thinking. However, Ferney's chief interest for us lies in the fact that it furnished physical security while the flying machinery of Voltaire's brain maintained a prodigious output. The world paid him tribute and all Europe called at his door.

Voltaire is now more than sixty years of age. He has kept the banner of truth in the field of battle for half a century. Now that the safety of a secluded fireside beckons him, why should he not rest? But his genius cannot be contained. Through the power of the pen he must scale the heights and take the strongholds of ignorance and intolerance. Out of a controversy with Rousseau who believed that knowledge was responsible for all the ills of civilization and that only a return to nature could bring peace and happiness, came the rapid fire of "Candide," making clear the fact that Nature takes little account of our individual needs, and that poverty and suffering come through ignorance, superstition and intolerance. Out of his knowledge of the horrible religious and political persecutions came the battle cry "Crush the infamous." Thousands upon thousands of letters and pamphlets saturated with this cry against intolerance are sent abroad. The leaven is working, the loaf will bake with revolution in the rising.

Voltaire was a friend of scientific medicine and employed his pen against charlatans and their nefarious practices. In the "Philosophical Dictionary," he pays this tribute to physicians:

> Men who are occupied in the restoration of health to other men by the joint exertion of skill and humanity are above all the great of the earth. They even partake of divinity since to preserve and renew is almost as noble as to create. [In the same essay he says], Medicine, having then become a mercenary profession in the world, as the administration of

> justice is in many places, has become liable to strange abuses. But nothing is more estimable than a physician who, having studied nature from his youth, knows the properties of the human body, the diseases which assail it, the remedies which will benefit it, exercises his art with caution, and pays equal attention to the rich and the poor.

Again he writes in this significant vein:

> Regimen is superior to medicine, especially as, from time immemorial, out of every hundred physicians, ninety-eight are charlatans. Molière was right in laughing at them; for nothing is more ridiculous than to witness an infinite number of silly women, and men no less than women, when they have eaten, drunk, sported or abstained from repose too much, call in a physician for the headache, invoke him like a god, and request him to work the miracle of producing an alliance between health and intemperance, not omitting to fee the said god who laughs at their folly.

In "Candide" appears Voltaire's well-known discussion of syphilis, vividly portraying the awful ravages of the disease and the degradation of prostitutes. It is here that he seeks to make Columbus responsible for having carried syphilis from America to Europe. In the "Philosophical Dictionary" under a discussion of leprosy and lues, we find the following:

> There are two circumstances which, in my opinion, prove that lues originated in America; the first is, the multitude of authors, both medical and surgical, of the sixteenth century who attest the fact; and the second is, the silence of all the physicians and all the poets of antiquity, who never were acquainted with this disease, and never had even a name for it . . . it was a present made to America by Nature. We have already reproached this same Nature, at once so kind and so malicious, so sagacious and yet so blind, with defeating her own object by thus poisoning the source of life.

He made an interesting comparison of leprosy, lues and smallpox, and tried to introduce into France Jenner's method of vaccination against the last-named. After discussing with ridicule some of the preposterous remedies suggested in "Medicine of the Mind" by Doctor Comus, onetime professor of medicine in the University of Paris, he closes with this illuminating paragraph: "Puppets of the eternal artificer, who know neither why nor how an invisible hand moves all the springs of our machine, and at length packs us away in our wooden box! We constantly see more and more reason for repeating with Aristotle 'All is occult, all is secret.'"

After all, Voltaire, must have included the physician in his conception of the eternal artificer's plan, since he justified his refusal to go on a proposed journey by writing "the maladies with which I am afflicted retain me near the greatest physician in Europe."

Success has crowned Voltaire's period of exile at Ferney. His ideals have prevailed; his colony has flourished; through the activity of his pen his genius has covered the world and established his name and fame. Louis xv is dead; Paris, the place of his birth, is calling; "Irene," his latest play, is up for rehearsals and success may not attend its production unless he is there to direct. At eighty-three, he is off for the Capital. The strain of travel and the enthusiastic reception prove too much for the frail body. The defenses are stormed, the old enemy is in the ascendency as attested by a flare of blood. Recurrent pulmonary hemorrhages with progressive weakness keep him from attending the initial performance of "Irene" which proves to be a great success.

Finally he recovers sufficient strength to be driven to the Louvre where he is elected President of the Academy with unprecedented honors, then to the Theatre-Français where in the midst of a great demonstration the laurel crown is placed on his head.

Voltaire had anticipated returning to his peaceful Ferney; but homage and old age, excitement and disease, with the designing artifice of his niece, contrive to hold him in Paris. Once more his genius manifests its accustomed flare for work and through this panacea he gathers new strength and labors feverishly over plans for a national dictionary while the hand of death is for the moment stayed.

Finally at the age of eighty-four, Voltaire surrenders to tuberculosis, the lifelong enemy of his flesh. The crucible is shattered; the hand that held the pen is impotent; the immortal genius would slip quickly and quietly away but for the old adversary, religious intolerance. Shall he fight to the end and be an exile after death, having his body thrown to the dogs or shall he surrender to the Church in order to secure decent burial? Priests vie with each other in jealous attempts to secure credit for his conversion. The end comes without satisfactory confessions. His body is secretly conveyed to the village of Romilly-on-the-Seine where intolerance is outwitted and burial secured in the vault of the village church. Here he is permitted to lie until the Revolution thirteen years later, moved by the spirit of his genius, culminates in the spectacular return of his remains to Paris where they finally find a resting place in the Panthéon.

In this short sketch Voltaire's physical and mental development is given in brief detail; his physical handicaps have been revealed and the trend of his versatile genius has been established. It is not within the scope of this paper to do more than this. To mention only the most important events in his unprecedented career would require volumes; to merely catalogue his literary achievements would add many pages; to give scant consideration to their influence in the course of human events would constitute a stupendous task. Suffice it to say that in spite of ill-health, his plays, poetry, history, letters, epigrams, odes and satires not only brought him honor and reputation throughout the world but his withering mockery sent him twice to the Bastille and made exile his constant habitat. His determination to establish freedom of the soul through the power of the pen was never daunted. In his last letter to Frederick, perhaps the last of all his letters, he wrote "It is true then, sire, that in the end men will become enlightened, and, that those paid to blind them will not always be able to put out their eyes."

It is only fitting that genius should have the appraisal of genius. We close with the words of Goethe, a late contemporary, whose genius was likewise influenced by spes phthisica:

> Depth, genius, imagination, taste, reason, sensibility, philosophy, elevation, originality, nature, intellect, fancy, rectitude, facility, flexibility, precision, art, abundance, variety, fertility, warmth, magic, charm, grace, force, an eagle's sweep of vision, vast understanding, rich instruction, excellent tone, urbanity, vivacity, delicacy, correctness, purity, cleanness, elegance, harmony, brilliancy, rapidity, gayety, pathos, sublimity, universality, perfection, indeed—behold Voltaire.

THE ILIAC PASSION*

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ILIAC passion is one of the many names given to a collection of symptoms, which today would be grouped under the generic title of the "acute abdomen." It was well known to Hippocratic authors (*ca.* 400 B.C.), and has been described by innumerable writers since that time, until the earlier years of the nineteenth century. King Stephen of England is stated by Gervase of Canterbury, and also by Richard in his "Chronicles" to have been "suddenly seized with pain in the iliac region, along with an old discharge from haemorrhoids" from which he died (October 25, 1154). The last reference I can find is in Mrs. Carlyle's letters[1] (1856) where she gives an account of the illness of Samuel Brown, "Doctor of great promise once, poor young man, killed in Edinburgh by too much kindness, (far worse than none if blind both) . . . He had had for seven years some derangement of the bowels, which was always expected to terminate fatally in iliac passion."

Many names have been given to this condition. Hippocrates and Aretaeus (30–90 A.D.) called it ileus, a term which Diocles of Carystus (350 B.C.) reserved for large intestine obstructions, preferring *chordapsus* for the small intestine type, in which Galen (131–201 A.D.) follows him. Celsus (*ca.* 25 B.C. to *ca.* 50 A.D.) used the terms *eilion* and *kolikon* to distinguish the small from the large intestine disorders, and other titles such as *epichordis* or *volvulus* are met with in his work. Caelius Aurelianus (*ca.* 400 A.D.) and Celsus both use the expression iliac passion or *miserere*, the latter adopting the alternative title *acutum tormentum.*

John Dolaeus, physician to the Landgrave of Hesse, in his "Compleate System of Physick, Theoretical and Practical,"[2] says:

> The disease is called *Iliack* either from the part affected, that is the gut called *ileon*, or from its symptoms, *eilein* from turning or twisting, because it is believed that in this disease the guts are twisted. It is also called *Chordapsus*, which signifies the stretching of a chord . . . for if you lay your hand on the belly you would think you felt a tight cord. Some call it *volvulus* or *concolvulus* from the twisting of the guts. Some call it a *vomiting of the ordure*. The followers of the Barbarous Physicians and the Vulgar call it *miserere mei*, by reason of its violent and most exquisite pain.

The term volvulus is used very loosely. Some authors use it where we should use hyperperistalsis, others confuse it with intussusception, others give the name to all types of iliac passion, whatever the cause.[3]

1. *The Nature of the Disorders Giving Rise to the Iliac Passion:* It is difficult to define the pathology of the lesions giving rise to the iliac passion. This is due to two causes: (1) Until the last fifty years or so, few cases of this nature were operated upon, so that there was no opportunity of seeing the condition. (2) Post-mortem

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examinations were rare, and their description inadequate. Thus the diagnosis was made on the symptoms, and certain symptoms even gave the name of the disease (e.g., *acutum tormentum* and *miserere mei*). In most cases the symptoms point to intestinal obstruction rather than to peritonitis, but many authors include inflammation as a cause.

Hippocrates speaks of "a dryness and constipation from inflammation so that neither wind nor aliment pass, but the abdomen is hard and vomits from time to time." Aretaeus[4] speaks of "an inflammation being produced in the intestines which excites a destructive pain so that numberless persons die from the most violent twistings," and Galen considered it always inflammatory.

John of Gaddesden[5] (1280–1361) differentiates between iliac passion, colic passion and renal passion. Under the iliac passion (which he says is specially fatal), he seems to include various forms of intestinal obstruction and possibly perforative peritonitis. Paracelsus (1493–1541) derives the disorder "from a sharp matter dissolved in the Guts by a pontick Salt, which matter by its innate pontick stypticity contracts the Guts and twists them.'' John Dolaeus (*vide supra*) sums it up as an inflammation of the gut ileum which offends the animal spirits. John Woodall[6] (1556–1643) says it proceeds from an obstruction of the small guts and quotes Dominicus Leo, as giving 3 causes for it:

> (1) The drinesse of the ordure or excrements.
>
> (2) Abscesses, a bile or a botch in the guts, and
>
> (3)Thick and drie humours.
>
> [and he adds] Distemperature of the ayre being very cold, a blow upon the gut ileon and the drinking of poison or cold water . . . It is many times noted for a disease infectious.

Thomas Willis[7] (1621–71) reported that he had known by ocular inspection suffusions of blood or serum within the coats of the intestines which excite, not the colick but the iliac passion. The disease[8] occurs, he said:

> . . . to those of a tender constitution having very sensible Fibers and Spirits quickly dissipated. Thus disagreeable medicines or unwonted eating and drinking also taking of cold and many other alterations about the six non-naturals oftentimes excite great perturbations with pain in the viscera of the lower part of the Belly.

He describes what he has seen in post mortems on patients dying of the iliac passion and says:

> I found almost in all that the cause of the Disease and their death was an inflammation or ulcer of some Intestine [and continues], The most cruel Colick and very much raging whose cause is an inflammation or an Imposthume of some Intestine for the most part induces the mortal Iliac Passion.

Sydenham (1624–89) says:

> . . . The blood being in tumult at the beginning of a fever, it deposits in the stomach the nearest acrid humours, which irritating the principal organs of digestion, reverses its peristaltic movement, and obliges it to reject by the mouth, the matter which incommodes it. The small intestines follow the disturbed movement.[9] The pain increases and begins to cause the inversion of their peristaltic motion, and a great inclination to vomiting, the disease now terminating in the Iliac Passion.

It is possible, as Dr. Latham[10] suggests, that Sydenham was referring to typhoid perforation when he enumerated ileus as the first of the symptoms which supervene upon fever.

Théophile Bonet (1620–59) follows Sydenham, and after saying that "the stomach is forced to invert its motion" goes on, "then the small Guts joined to it being already weakened give way to the strong motion of the stomach and with these the greater are drawn into consent, the stomach inclining to vomit leading the Dance."

Acute appendicitis does not seem to have been recognized as a cause of the iliac passion though Willis[11] says, "If an inflammation or sphacelus (which I have often seen) happens about the caecum, so that the fleshy fibres being injured cannot perform the contractions for the elevation of the Excrements they stagnating towards the Ileum induce an incurable Iliac Passion."

Pus in the abdomen is mentioned only by Aretaeus, but Hildanus,[12] reporting post mortems on these cases, where the omentum and all the intestines were seized with a sphacelus refers to the fetid smell, "which would not permit us to examine thoroughly into the cause of the Distemper." It is interesting, however, to see that a condition much resembling a relapsing appendicitis was known, and classified under the colick passion, while Celsus[13] says, "the malady which is situated in the larger intestine generally happens in that part which I have described as the caecum. Great flatulency, some pain, especially in the right side. Frequently recurring in the course of one's Life, it embitters without shortening it." This description would do well for enteroptosis also.

Thomas Willis speaks of "the Colick falling upon some more predisposed by a peculiar right . . . These fits have their periods and are difficult to cure. The pains in each fit still repeat the same part . . . as often as they are repeated in the same sick person, they mostly observe the same nest."

As autopsies became more usual, we find many descriptions of the condition after iliac passion. Intussusception was often described, and reverse intussusception not unknown,[14] Sylvius[15] (1614–72) refers to the slipping of the lower part of the gut into the upper, or the upper into the lower, the former of which he considered, "may be cured by swallowing golden or leaden Bullets with oil of sweet almonds or an ounce or two of crude mercury, but the latter is incurable."

Paul Barbette[16] (1676) says, "the Guts which move themselves variously like to worms, sometimes fall inwardly into one another especially when afflicted with great pain; in this case the excrements cannot pass to the Fundament. This malady is called Miserere Mei, or the Iliack passion." Barbette has received the credit for being the first to advise laparotomy in the iliac passion.

Several cases are recorded by French surgeons[3] of a cure following the sloughing of the intussusceptum (Sobaux at Origny, 1765; Salgner of Sens, 1752; Fauchon of Melun sur Seine, 1765). The great Dr. Mead* gave an account of a patient of his who

> . . . had been ill three or four days of the Iliac passion without any stools. The Physician who attended him tried the common methods of strong purges with opiates without any relief. The Doctor ordered infusion of Senna with Syr. of

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* Mss. 60, Med. Soc., Lond. Library. No date.

Spin-(a Cervina) which worked wole, and he voided by stool a large piece of one of the large intestines and was afterwards cured.

Even as late as 1859, Dr. Brinton,[17] physician to the Royal Free Hospital, said that 30 to 40 per cent of all intussusceptions recover by casting off the intussuscepted part and "an operation ought not to be mooted."

It is curious that Morgagni[18] who made so many post-mortem examinations says that he has never seen an intussusception or a volvulus, but he does not deny the occurrence of either, and indeed gives an excellent account of the obstruction to the mesenteric circulation in intussusception which he ascribes to Haller (Strena anating) and he reports several cases of intussusception due to worms from other authorities (Peyer, Ruysch and Heister) and quotes Heister as saying that the iliac passion may sometimes arise from worms, with which he agrees.

We find many cases of obstruction by a band and few cases of cancer of the pelvic colon. A case is reported of a young man seized with obstruction on his wedding night, and found post mortem to have his ileum obstructed by the appendix adherent to the mesentery. Several cases of obstruction by bands are reported in the "Mémoires" of the French Academy of Surgery[19] one by Moscati having an engraving of the condition. A very interesting case is recorded by Claudius Amyand, Surgeon to St. George's Hospital,[20] of a boy of ten who died from obstruction due to a Meckel's diverticulum. There is a full account of the course of the illness and of the post mortem on a girl of twenty-one under the care of Dr. Garthshore of St. Thomas's Hospital,[21] in which John Hunter was interested. She died from obstruction of the lower ileum by a band on the sixteenth day, the gut having given way at the point of constriction. A story is told by Van Helmont,[22] 1577–1644, of a certain Thomas Balbani of Antwerp who offered four score thousand Flanders pounds for a cure of his iliac passion. Post mortem he was found to have "a little, hard Excrement in the small guts 16 inches above the blind gut and a great deal of liquid excrement above it."

Perhaps the most important confusion lies in the fact that many cases of strangulated hernia are described as iliac passion and the operative treatment prescribed for it might give the impression that laparotomy was recommended for the treatment of the iliac passion. Thus Praxagoras of Cos (340–320 B.C.) is stated to have recommended opening the abdomen and replacing the bowels in their natural position *after taxis had failed*, and Caelius Aurelianus[23] (400 A.D.) charges Praxagoras with tormenting the intestine fallen into the scrotum by compression of the hands. Bonetus[24] refers to the possibility of an iliac passion being "joined with a rupture, when the gut Ileon is slipt into the Scrotum, after the falling down of which Hippocrates never saw any man recover."

Morgagni says that the iliac passion arises, as it for the most part does, when an intestine is intercepted or compressed and includes strangulated hernia as a cause but gives many other causes, among them intussusception, inflammation of the intestines, a scirrhous contraction of the gut, a mass of hardened feces, a calculous matter collected round gallstones, and about swallowed gold coins, and peritonitis following rupture of the bladder to which he ascribes the death of the celebrated anatomist Albrecht.

2. *Symptoms of the Iliac Passion:* Among the early writers, Hippocrates and Caelius Aurelianus gave the best description of the symptoms. After collecting the writings of many authorities, R. James[25] gave an excellent account of the onset and progress of the disorder.

> 'Tis preceded by a Constipation of the Belly which is soon after succeeded by acute violent pains, accompanied by inflation, Distention and a hard tumour in the umbilical region. The patient is so totally costive that neither Flatulences nor Faeces can be discharged by the Anus. Afterwards the Flatulences discharge themselves by the mouth; and after a previous nausea, a bilious and pituitous Matter is frequently vomited first of all. The patient breathes with difficulty, and whatever ailments or drink are taken, though they descend into the stomach, are yet soon after thrown up because they cannot pass through the Intestines; and the matter thus vomited is a reddish sordes, not unlike Excrements, and frequently discharged with a highly fetid smell. This condition is succeeded by a loss of strength, a preternatural heat, a hard and contracted pulse, an immoderate thirst, a redness of Urine and a difficulty in discharging it. When the Disorder has arrived at its worst state, the patient is seized with a Hiccup, a Delirium, Convulsions and a cold sweat whilst in the meantime violent convulsions and faintings frequently put an end to life. [James concludes his account by saying] I recommend this observation with respect to vomiting the Faeces in the Iliac passion to the further scrutiny and stricter Examination of Physicians.

Celsus,[13] says of *chordapsus:*

> . . . it excites pain above and sometimes below the umbilicus. Inflammation occurs in either part; neither stools nor wind are passed downwards; if the upper part is affected food is vomited by the mouth, if the lower faeces, if both, the case is inveterate.

Aretaeus[26] says that children are much subject to the iliac passion but the disorder does not prove fatal to them. Old persons are not often seized but very rarely escape when seized with it. It is more frequent in summer than in spring, autumn than winter, but the summer affords more instances of it than the other seasons.

> When the Disease is more moderate the Sick are sensible of a twisting pain, a redundance of Humidities in the Stomach, a general faintness and feebleness with fruitless Eructations which afford no relief; a rumbling in the Belly from Flatulences, which make their way as far as the Anus, but are there intercepted and prevented from being discharged . . . when the Disease proves mortal the Patient falls into a cold sweat with a difficulty in rendering his urine and a constriction of the Anus to such a degree as not to admit a thin Probe; he vomits up his Excrements, loses his voice, and his pulse which at first was slow and small, at the approach of death becomes very quick, small and weak.

John Arderne,[27] writing in 1376, draws a distinction between hemorrhoids and the iliac passion.

> In the emoroids first goeth out egestion and afterwards goeth out blode with egestion togidre. In ciliaca passion forsooth goeth out blode and afterwards egestion. Ciliaca passion is akying of the wombe [he uses womb where we should say abdomen] with puttyng out of blode ensuing.

The symptoms might point to rectal cancer or to intussusception.

Dolaeus[28] describes three varieties: (1) *Stercoral*, which has its rise from the ordure and superfluities of meat which should be voided at stool; (2) *humoral*, which is caused by a thick viscid humor fixed in the guts or by a sharp and corroding one; (3) *flatulent*, which arises from wind pent up which seeks a passage by violence. He says that Galen observed that "if one vomit ordure you have a most certain sign that the small Guts are affected," but he believes this does occur in the colic passion also and he says Willis also thought this. In his account of the symptoms he says:

> The patients feel a fixt and permanent pain in one or more places and that either very heavy or tensive or burning or throbbing. Sometimes there is a notable Tumour in this or that place of the Belly which one may even feel with one's hand.

Sydenham[9] (1624–1689) in his description says:

> . . . the patient is seized with a chilness and shivering and fits of heat and cold succeeding by turns . . . violent gripings come on suddenly occasioned by the speedy translation of the febrile matter to the bowels . . . till at length the pain increases and being by its long continuance deeply fixed in the bowels begins to cause an inversion of their peristaltic motion . . . and a great inclination to vomiting, the disease now terminating in the iliac passion.

Morgagni is insistent that an advanced condition of sphacelus and gangrene can exist in the intestines without violent pain or an acute fever and he makes a very valuable observation. "Nothing," he says, "in the whole practice of medicine ought more to be suspected than the sudden vanishing of pain contrary to expectations." In conversation with Valsalva and Albertini he found that they too had noticed the occasional absence of pain and fever in these cases, and he asks Albertini how he then judges the danger which threatens. Albertini answered:

> By the pulse, the abdomen and the face. For the pulse is low and rather weak and if you attend to it closely, has some little irregularities which make it not quite similar to itself; and the abdomen is tense, hard and attended with some pain; and finally the face has something unusual in its appearance, though different in different persons, so that sometimes I have observed the eyes to look as if the patient were frightened; at other times there has been a kind of lividness about the lips . . .

3. *Theories and Experiments:* That the contents of the intestines were passed downwards by intestinal movements was well known, and the use of the term peristalsis is universal. John Dolaeus[2] said:

> I have often beheld these motions with delight like snails creeping on the ground. Oftentimes when I have cut open animals alive I have seen the Guts strain with a waving motion and drive the chyle and Excrements downwards as if they had been stript through a narrow Ring.

Haguinal[29] opposed the idea that fecal vomiting was the result of antiperistalsis. He considered that the movement of the diaphragm and the abdominal muscles was enough to ensure the passage of the gastrointestinal contents. He experimented on cats and dogs, opening the abdomen and ligating the intestines and in no case did he see the peristalsis or antiperistalsis. He opened the intestines and put his finger in but never felt any movement. He proved by experiment that chyle was absorbed by the lacteals even in cases of obstruction. Cats vomited earlier than dogs, the smaller the earlier. Among animals of equal size those vomit earliest who eat most and of those of equal size who have eaten equally the higher the ligature the earlier the vomiting. Peyer[30] saw a volvulus (intussusception?) produce itself and disengage when he irritated the gut, and concluded that it often happened and only persisted if there was some cause which prevented disengagement. Schwartz and Brunner caused antiperistalsis by irritating the intestine. There was also much discussion as to whether a clyster or even a suppository could pass the valve of Bauhin and be vomited. Opinion was generally in favour of this view.

4. *Prognosis:* All authors are agreed upon the gravity of the condition. By some it is spoken of as the mortal or incurable iliac passion. Celsus[31] considered the danger increased if what is thrown up by vomiting be bilious, of an ill smell, of various colors or black. Aretaeus says that the disorder does not prove fatal to children but old persons very rarely escape when seized with it. Woodall[6] refers to a statement by Galen (Aphor. 44) that "when the Iliack cometh with distilling and dropping of Urine the party dieth on the 7th day except an Agus happen so that in the meantime sufficient quantity of Urine do come." Dr. James Cooke of Warwick[32] reports this and also refers to "coldness of the extreme parts as an ill sign."

Ambroise Paré[33] (1509–1590) quotes Avicenna, the Persian (980–1036) as giving a good prognosis when the pain is not fixed, that is to say arrested in one place, (a point insisted on also by Woodall) and also if the feces are not absolutely retained. Dangerous symptoms are severe pain, constant vomiting, cold sweat and cold extremities, and continual hiccough.

Dolaeus says, "this is a most horrible and dangerous Disease and usually incurable," and he quotes Arculanus, (*d.* 1484) as saying that "the death of Ileous persons is cruel and nasty," and Sebizius, who says that "if Iliack persons be in a cold sweat, death is in the pot."

5. *Treatment:* As the treatment of this condition is, as we know now, essentially surgical, and as laparotomy in the absence of anesthetics and a realization of the importance of surgical cleanliness was practically out of the question, one is not surprised to find that the principles of treatment did not vary materially through the centuries. Thus we see that in a case reported in the *Edinburgh Medical Journal*[34] for 1872, with much detail, the treatment differed but little from that recommended by Hippocrates, and in a case of intestinal obstruction discussed before the Clinical Society of London[35] in 1876 all the old methods were used; croton oil, passing a long tube up the bowel, kneading the abdomen, inverting and shaking, and though eight members spoke, no one suggested laparotomy, although anesthetics had been in use for thirty years, and Lister had been preaching his doctrine for ten years. It is true that it was not till 1886 that Lawson Tait[36] reporting 139 consecutive ovariotomies without a death, proved that the abdomen could be opened safely, but progress was lamentably slow. The usual treatment dating from the earliest times was to soothe the pain and obtain an

action of the bowels. Hippocrates[37] gave the general rules upon which most of the treatment was founded. He recommends that all the parts above the diaphragm except the heart are to be cooled (by bleeding) whereas the inferior parts are to be kept hot, the patient being placed in a bath and carefully anointed with oil. He orders a suppository prepared of honey "whose anterior part is anointed with the Gall of a Bull to be twice or thrice introduced into the Anus, followed by the injection of a Clyster." If these measures prove ineffectual a smith's bellows is to be introduced into the anus, and by its means such a quantity of air injected as is sufficient to distend the abdomen and remove the contraction of the intestines. Praxagoras followed this practice but Aurelianus disapproved of the use of the bellows because the wind that is forced in may do harm by its coldness.

Bonetus[24] quotes Amatus Lusitanus (1511–1563) and Epiphanius Ferdinandus in its favor, "for it does not only good by untwisting the Guts but by opening a grievous and contumacious obstruction by dilating the Gut." It is interesting that when I was a student inflation was still used as a remedy for intussusception. Various methods are suggested for applying warmth to the abdomen, for in addition to poultices and warm oil, Willis and James suggest covering the whole abdomen with the omentum of the calf. Sydenham preferred a live puppy. The use of clysters was generally approved from the time of Erasistratus (300–245 B.C.) though Paracelsus (1493–1541) rejected them, calling them "a vile, absurd and filthy form of medicine." John of Arderne, 1307–1380 (*vide supra* p. 78) is in favor of the use of clysters.

> I have oftymes cured many patients with clystery without any other medicines, and oftymes within three hours. And, therefore, it spedeth for to work first with a clistre in colic and yliaca passions, for the lower bowelles avoided of their superfluities, the over bowelles may more lightly put out from them their superfluities to the lower bowelles.

Until the end of the eighteenth century, clysters were administered either by the syringe or by the clyster bag. In 1789 James Bureau,[38] a Fellow of the Medical Society of London, gave a description of an apparatus for administering the enema by gravitation. He gave the credit to De Haen[39] who in his turn ascribed the invention to Widemar, a Milanese physician. In the discussion which followed Dr. Adair gave the name of the "garden pump" to the apparatus which he heartily commended. In later years the smoke of tobacco was thought very highly of as a rectal inflation. Opium was often prescribed and Dr. Willis advocates the use of it in a delightfully ingenuous phrase, He says,[40] "Opiates are of necessary use in the Disease of the Colick, without which the sick cannot live nor the Physician nor those who attend them be at quiet or have any leisure time." There was much difference of opinion as to the value of purges. Aretaeus advises them only if all else fails, Paracelsus is against them, Sydenham disapproves of them, Munro, Sharp and LeDran of the eighteenth century surgeons favoured them. Willis especially refers to the possibility of the disease being made worse by violent or frequent purging, and Adair [41] says, "they may by their stimulus convert a simple cholic into an iliac passion." In later years Prof. Bennett of Edinburgh speaks of purgation as "clearing the field for future operations." Venesection was almost universal, though Valsalva[42] said that "blood letting does not succeed well in inflammation of the bowel." Many curious remedies were suggested. Hippocrates was said by Bonetus to recommend "mere wine" on the grounds that it induces sleep and "there is scarce a Disease from which they are not freed when the Gout comes upon them, for it is impossible that all things should be in pain at once." Less pleasant remedies are referred to by John of Gaddesden while Dolaeus recommends "for the ordinary drink a decoction of Horse Dung because Excrement expels Excrement." Quicksilver and gold or leaden bullets were in much favor, the more and the larger the better says Van Helmont,[22] who considered the iliac passion due to obstruction by unusual excrement, and Ambroise Paré[43] reports Marianus Sanctus as seeing recoveries after the swallowing of three pounds of mercury in water, but smaller doses, one to two ounces, were in favor. Sydenham[44] and Schacherus[45] were opposed to quicksilver, and Bonetus fears that in great quantities it might extinguish the innate heat by its cold. A very interesting account of a post mortem performed on a "gentleman of note in Dublin," appears in the *Philosophical Transactions*[46] presented by Sir Hans Sloane, President of the Royal Society who had received it from a Dr. Madden. The patient died of a scirrhous contraction of the pelvic colon. The stomach was empty and much inflamed. Some scattered grains of crude mercury were in the intestines with black gritty powder. The colon at its origin was distended to twice the thickness of an ordinary man's arm at the shoulder, much inflamed and contained 6 qt. of liquid excrement with crude mercury and some more black powder (Ethiop. mineral = sulphides), perforation 34 in. towards the left kidney and four smaller perforations. James added a word of caution[25] on the use of quicksilver:

> . . . but when inflammation is already present and the strength much impaired, we are to abstain from the use of this medicine lest the Byestanders and such as are not capable of forming a right judgement should be of opinion that the Patient is destroyed by this Remedy which has had the bad fortune to be suspected by everyone.

Praxagoras (340 B.C.) is generally given the credit for advising operation, and C. Aurelianus (400 A.D.) supported him, but Haller and others thought he referred to strangulated hernia.

The movement in favor of operative treatment seems to have been first definitely started by Paul Barbette,[47] M.D. of Amsterdam. On page 324 of his treatise on intussusception which he calls the Miserere Mei or Iliac passion he says:

> Ordinary means affecting nothing, a great cupping glass without Scarification is often to be applied to the part affected and taken off again, but whether it is not better to divide the muscles of the abdomen and the Peritoneum and draw out with the fingers the fallen in Gut than to suffer the patient inevitably to die.

Whether Barbette did the operation is not known.

Throughout the literature one comes over and over again to the account of two cases. The first is reported by Bonetus.[48]

> The Baroness de Lanti, near Chatillon sur Seine, in the Duchy of Burgundy, was at the last extremity with an iliac passion. A young Surgeon who had for a long time followed the Army, presented himself and promised a certain cure if the patient would submit to operation, and she agreed. He drew out much intestine before he discovered the twist, he undid it, and replaced it. He then sewed up the abdomen and the wound healed happily. She gave him a pension which he enjoyed for but three years as he died before her who owed her life to him.

This operation was not witnessed by Bonetus, but reported to him by M. Pinault, a minister of the Church of Geneva, and Monfalcon[49] considered the story very doubtful as it was reported by a man "qui n'etait point de l'art," and suggests that the case may have been one of strangulated hernia. The other was reported by Velse.[50]

> A woman of fifty years, seized with the cruel accident of the iliac passion, having received no relief by the treatment administered to her by Dr. Nuck (1650–1692) he realised that she had a volvulus and obtained the services of a very able surgeon to make an opening into the left side of the abdomen, four fingers breadth from the umbilicus, descending obliquely towards the posterior and inferior parts, to draw out the intestine, bathe them in warm milk, and then to search for the seat of the volvulus. When he found it he disengaged it and replaced it in the abdomen and sutured the wound. He was successful, the patient surviving the operation more than twenty years in perfect health. Monfalcon's comment on this case is delicious. "Enough! one has abused 1,000 times the famous maxim, *Meeius unceps remedium quam nullum.*

Velse points out the difficulty of the differential diagnosis between intussusception and the other causes of iliac passion. "One soon perceives with grief the limits of Medical Science in this part of the Art. If all fails it would always be better to try gastrotomy, however doubtful, rather than abandon them to despair." In a discussion on the treatment, M. Hevin[51] says:

> Surgery has resources to relieve these deadly accidents when the malady arises from the strangulation of the intestine in a hernial tumour. But if the defect is interior and if it does not give way to the first method of treatment ought we to abandon the patient to his sad and unhappy lot? Could one not try in their favour an operation, doubtful in truth, which would nevertheless make a unique effort to save life in a case totally desperate? Whether the Ancients had the idea or not most modern Authors either say nothing about it or reject it. Some have thought less unfavourably about it.

But Hevin was definitely against operation, "as volvulus, the most easily treated, is the rarest cause of the iliac passion." He considered operation "dangerous and useless and indeed does not deserve the name of operation which offers naturally an idea of help and well doing." This opinion was generally held by the majority of the members of the Academy of Surgery in Paris as late as 1818,[49] and the French surgeons in the years before the Revolution were the leaders of surgery in Europe. Frederic Hoffman[52] (1660–1742) said, "If you decide to do it you must not wait too long," and Felix Plater was in favor of operation, but the general tone is against it. "It is not the first time that operators have dared to open the abdomen in the hope of meeting with an internal strangulation, but most practitioners faithful to their rule to speak only of their successes take great trouble to be silent about their unfortunate efforts" (Monfalcon). George Otton,[53] says:

> . . . for of two things one; either the powers of the invalid will be so far weakened that he will be totally outside the scope of an operation, or the intestine will be so far gone in gangrene that death must ensue . . . It is better to leave such desperate cases to Providence while not neglecting the other methods which should be used.

Schacherus[54] said he could not deny the value of the procedure if one could be sure of the presence of intussusception. But with so little certainty of the signs of the condition who would dare to undertake so grave an operation. "What dishonour and what regrets would not a Surgeon experience who, after having opened the abdomen of a patient, did not find there the disease for which he was looking."

Dr. Garthshore[55] commenting on the case of obstruction by a band (*vide supra*) says:

> Operation could have been done in this case, but what are the symptoms by which we may be enabled to distinguish this particular cause of the Ileus? . . . Until we know such as point it out with precision we shall not be warranted in recommending so painful and hazardous an operation as gastrotomy.

And so we come to the nineteenth century, when Benjamin Phillips[56] reports 169 cases of obstruction of whom 133 died, but of 27 operated on 13 recovered. As you have heard, in 1876, no suggestion of operation was made in a discussion on a case of intestinal obstruction before the Clinical Society of London. In 1890 only ten operations were performed at St. Bartholomew's Hospital for acute abdominal emergencies. When I was a student we used to speak irreverently of an emergency laparotomy as the "coup de grâce." Slow, indeed, has been the progress in the treatment of what used to be called the iliac passion and it may be said that no real advance was made until the end of the nineteenth century.

Notes

1. Mrs. Carlyle's "Letters," 170, p. 297. Dated Auchtertory, Frid. Aug. 29th, 1856. The history of Samuel Brown is this

> For seven years he has, as you know, been afflicted with some derangement of the bowels, which was always expected to terminate fatally in iliac passion. Some weeks ago he seemed beyond recovery, and indeed they were watching him for death. At last his bowels being moved by some very strong medicine, there was passed a little bone, a bone of some sort of game, grouse they think, about half an inch long, and this having fixed its sharp end into the bowel, has caused his whole illness . . . As it left an open hole in the bowel, and he was already so weak, they did not think he would be able to struggle through the cure, but it is now a good many weeks, and he is still alive, (I believe) and if he escapes the danger of having the bowel closed up in the course of healing the hole in it, he will be restored to perfect health the doctors think.

Letter 169, p. 294, Aug. 23rd, 2856. Samuel Brown, a doctor of great promise once, poor young man, killed in Edinburgh by too much kindness (far worse than none if blind both).

2. Dolaeus, J. A Complete System of Physick, Theorical and Practical. Eng. Trans. 1686. Book III, Chap. VI, 1686.
3. Hévin Mémoires de l'Académie Royale de Chir. Vol. 11, 1768.
4. Aretaeus. Trans. by John Moffat, M.D. From the original Greek. Not dated.
5. Cholmely, H. P. Rosa Anglica. 1912, p. 69.
6. Woodall, J. The Surgeons Mate. 1617.
7. Willis, T. On Fermentation. 1684. The Soul of Brutes, Chap. XV, p. 225.
8. Willis, T. Guide to the Practical Physician. Lond., 1684.
9. Wallis, G. Sydenham. Vol. 2, 1788, p. 336.

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GIGANTISM AND ACROMEGALY

(HYPERPITUITARISM)

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I. Introduction

THE alterations in the body due to hyperfunction of the pituitary body are several and it is proposed in this study to treat of those produced by hyperfunction of the anterior lobe, namely, acromegaly, gigantism, and a condition which combines features of both.

Acromegaly is a well-defined disease, with both onset and progress fairly characteristic, though there are a number of conditions with which it may at one time or another in its course be confused, or there may be accompanying symptoms to becloud the picture. Gigantism is plainly characterized by the fact that the individual is in height above the extreme norm for the species. In this there can be no confusing conditions and so gigantism appears to indicate pituitary hyperfunction per se, if we are to rely upon evidence such as will be discussed in the historical treatment of the etiology of these abnormal states. With gigantism may be combined a number of accessory alterations, including some of the manifestations of acromegaly, so that it is well first to consider briefly the conditions of acromegaly and gigantism in the light of our present knowledge and especially with a view to bringing out the manifestations most to be relied upon in an historical consideration.

The disease acromegaly, as the derivation implies (*ατρον*, extremity) and (*μέγαζ*, great) is characterized by enlargement of the terminal portions of the body. This enlargement ordinarily begins in the hands, there being a general hypertrophy in which either lengthening or thickening may predominate. There is no marked deformity, and the soft parts are most affected. Next the feet enlarge in a similar manner, with roughening of the skin. There may be irregular enlargement, e.g., one foot or the other to a greater extent, and at times this proceeds to an extreme. There is thickening of the skull and the head enlarges but unequally as to its parts in that the face is affected relatively more. The lower jaw protrudes and the lips, especially the lower one, are enlarged and may be everted. The tongue may also enlarge and the teeth fall out, with consequent disturbance in speech and masticatory function. Growth of hair generally increases over the body.

An interesting alteration, one which may come late in the series of changes, is a kyphosis in the cervicodorsal region. Attending this may be marked increase in the anteroposterior diameter of the thorax, so that the subject is hunch-backed and pigeon breasted, the head being sunk between the shoulders.

Subjective symptoms and functional derangements are significant and are often the first indication of onset. Variable pains and especially headache are complained of and optical derangements are constant, ranging from slight amblyopia to total blindness in the late stages. In females the menses are early suppressed. Polyphagia may often be noted as well as marked polydipsia. Usually the sexual desire decreases and with time anaphrodisia becomes complete. The subjects become depressed, irritable, or even feeble and this last especially when the disease has considerably progressed. The subjective symptoms in particular are delineated entertainingly in Dr. Mark's personal account of acromegaly.

Conditions which may most of all be mistaken for acromegaly in historical literature are myxedema, Paget's disease (osteitis deformans), diffuse hyperostosis (leontiasis ossea), the partial macrosomias, rickets, hypertrophic osteoarthropathy, and the elephantiases. These, especially in the benign form or early chronic form of acromegaly, may render an absolute diagnosis very difficult, so that the radical changes, as in connection with gigantism, are more to be relied upon.

Gigantism itself is a simple symmetrical hypertrophy in exceptional cases only. In a selected series of cases (Sternberg), signs of acromegaly appear in about half. This is accounted for by assuming that, following the full development of gigantism and a closure of the lines of ossification, there is renewed activity on the part of the already overlarge pituitary. Leontiasis ossea, genu valgum (knock knees) and hemihypertrophia facialis may also be accessory to the hypertrophy. Further differentiation among giants may be made in consequence of variation in degree of sexual infantilism, so that we may have certain cases set apart as infantile giants. Very few giants live past the age of thirty, and contrary to popular impression, they are usually feeble minded, ill-proportioned, and of mild disposition, though, early in the course of the growth, they may be possessed of an enormous strength. These observations are based on cases on record but, historically, much is made of the exceptions. Any historical treatment of gigantism, then, cannot exclude the accessory phenomena, but, in the case of acromegaly, this is an advantage, for by stressing gigantism to draw the attention, many acromegalic features have been brought out which would otherwise have remained undisclosed.

In dealing with the subject of gigantism, the tendency toward exaggeration must always be taken into account.

II. HISTORICAL: GIGANTISM

A. GENERAL CONSIDERATIONS. The first evidences of hyperpituitarism apparently appear, as might be expected, in phylogeny and, more specifically, millions of years ago in Mesozoic reptiles. In speaking of the term "Hyperostosis" as applied to ancient animals Moodie (1923) says:

> The type of pathological changes referred to under this heading is not due to infection, irritation, fracture, or any of the general phases of hyperplastic outgrowths . . . but is of the nature of general enlargement of parts or of the entire skeleton, similar to those osseous enlargements seen in cases of human gigantism.

Studies of this phase of hyperostosis have been carried out chiefly by the distinguished Viennese paleontologist Abel (1912) and by Volz (1902), Brandt (1873), Steindachner (1859), and other European workers. For this condition, Abel suggests the comparative term "pachyostosis" and in a summary of instances in which it is found, gives the following condensed survey.

Fossil joints very frequently show that alteration in form and structure which it is customary to denote as "Pachyostosis or Hyperostosis." These alterations are of functional significance in several groups where there is adaptation for the formation of an inner armor as protection against breakers, etc. Among the living Sirenia only the Dugong possesses pachyotic joints. Throughout the fossil Halicoridae, pachyostosis of the skeleton is far more prevalent and involves almost all joints. Whereas, among the primitive Sirenia Eotherum aegypticum Owen from the middle Eocene lower Mokattam-step Aegyptena, only the fore part of the thorax and the foreribs among other skeletal elements (shoulder-blade, skull, lower jaw) are pachyotically altered, the pachyostosis had encroached in the younger Eocene libyca Andrews almost to the hindermost vertebrae and in the Halitherium and Mataxytherium in Oligocene and Miocene goes even farther to reach the maximum in the Pleiocene Felcinotherium.

The bearded-whale called Pachycanthus Suessi Brandt, of the Saramatian depths of the Vienna basin, shows the same appearances. The first beginnings of the vertebral and rib pachyostoses are already to be considered in Cototherian (the Leithakkalk), as a vertebra in the Vienna Hofmuseum shows. Here also it appears as a disease of the vertebrae which has later become of functional significance . . . Pachyotic alterations of the joints are also to be noticed among several fossil fish, for instance Caranx Carangopsis from the Saramatian depths of the Vienna basin.

But it is a ar fcry from such remains to gigantic human bones of equal antiquity and indeed, the oldest of gigantic human skeletons now at hand boast but a few hundred years. In the interim comes a mass of legendary lore in which may be found illuminating accounts representing the mode of description of the time and which have left their impress on later points of view concerning gigantism.

In Genesis VI: 4 is found the following view: (B.C., 3679 [?]). "There were giants in the earth in those days; and also after that, when the sons of God came in unto the daughters of men, and they bare children to them, the same became mighty men which were of old, men of renown."

The same idea of men born from heaven and earth who could heap up mountains and scale the sky is sung in the eighteenth century B.C. by Hesiod in his "theogony" and so arose the doctrine given by Pliny and Augustine, in the first century of the Christian era, that the race of man had degenerated and that gigantism represents a disclosure akin to the original state. An idea similar to this was expressed in 1718 by Henrion, the French academician, who contended that Adam was 125 ft. 6 in. tall and Moses 13 ft. in height and that shrinkage would have continued to atomic specks had not Christianity intervened. Felix Plater, in 1577, examined some fossil bones at Basil and pronounced them as belonging to a giant 16 to 19 ft. tall, and Buffon makes the assertion (Hist. Nat., 1749-1804) that there is no doubt but that man was once 10, 12, or even 15 ft. high.

Medical men of the seventeenth century were drawn into the controversy when Habicot, Physician of the University of Paris, in his "Gigantosteologie" (1613) described the finding of five enormous bones, making the assertion therewith that they were human and, from comparative measurements, had come from a giant

$25\frac{1}{2}$ ft. tall. Furthermore, he stated that the bones were probably those of the giant Teutobrochus, King of the Teutons, Cimbres, and Ambrons, who was killed after his defeat in 105 B.C. by the Roman Consul Marius. The work was immediately taken up by the pedantic Riolan, who was one of the opponents of the discovery of Harvey, and a polemic ensued, the nature of which may be conveyed by the following titles:

1. "Gigantomachie, a response to the 'Gigantosteologie' by a scholar of medicine." Riolan, 1613.
2. "An apologetic discourse concerning the truth as to giants, as opposed to the 'Gigantomachie' of a so-called scholar of medicine." By one of the surgeons in ordinary to the King, Charles William. Paris, 1614.
3. "Deceptive discovery of supposedly human bones attributed to the king Teutobrochus" by Riolan. 1614.
4. "Response to a discourse regarding the truth as to giants" by Nicholas Habicot. 1615.

. . . etc.

From this time on, reports of such findings become rather frequent. A tooth $4\frac{3}{4}$ lb. in weight was found in New England in 1712 with the result that Dr. Increase Mather sent to the Royal Society of London a communication of his theory as to the existence in antediluvian times of men of enormous stature. This occurred but a short time after a note had been written to the same Society by Thomas Molyneaux in 1700 in which he says:

> And I am persuaded by what I have seen myself of this kind that the large tooth mentioned by Olaus Wormius in his museum and afterwards particularly described and figured by Thomas Bartholine in his "centuria I. Historiarum Anatomicum Historia 98," which they both thought and would have us believe from its resemblance was a canine tooth of a giant, was nothing else but one of the teeth of the Cetus Dentatus, or Spermaceti whale.
>
> Nor is it long since that the bones of the fore-fin of the Porpes, or a small Whale, artificially joyned together were exposed in London by way of public shew as the skeleton of a giant's hand.

Sir Hans Sloane, the first president of the Royal Society, also had sent to him a vertebra represented as being human, which proved to be that of a whale. Bones regarded as the remains of enormous giants were objects of great veneration and often placed at the door of cathedrals. "Even today," says Langer (1884), "one may see at the chapel of the Chateau of Cracovie, the bones of a mastodon, a cranium of a rhinocerous, 'Tichorinus,' and most of the lower jaw of a whale," all of which were at one time thought to be human bones.

The description of bones found, regardless of the interpretation placed thereupon, is apt to be a concrete thing, little subject to exaggeration. Consider, however, another factor which must be disposed of before turning to accounts of gigantism, that is, the tendency to make more impressive the grandeur of the giant. Let us take for instance the tale of the Patagonians (*Patagon*, Spanish = great feet). Chevalier Pigapheta (1524), historian to Magellan, in an account of the Patagonians of South America in his "Voyage around the World," states that they were of such monstrous size that the heads of the Spaniards hardly reached their waists. This subject also became one for discussion among the learned men of the time and was added to by

Andreas Thevet, Cosmographer to Henry III, King of France and Portugal in his "description of America" (1575). Thevet was shown some bones brought from South America by a Spanish merchant and purporting to be of a giant 11 ft. 5 in. in height who died in 1559. He says:

"A very marvelous thing to which I could scarce have given credit, if I had not seen it myself; inasmuch as the bones of the legs measured full three feet four inches in size and the skull three feet one inch about."

As late as 1761, we find Tarrubia in the volume "Giganthologia," endeavoring to prove the existence of the giant race while in the meantime Buffon, Sir Hans Sloane, and Frazer had taken up arms on the opposite side. The subject was agitated early in the last century, being brought to a close finally by the rise of anthropometry, with the revelation that the Patagonians are no greater in stature than the average European.

I say the subject was brought to a close. That is only partly true since in the lay mind the drama and literature of the middle of the last century still have their effect. We need but bring to mind Fasolt and Fafner of the Wagnerian opera "Das Rheingold" (*c.* 1855) "giants armed with immense clubs, great hulking fellows," the builders of Valhalla who did not hesitate to enter into combat with Wotan, supreme god of the divinities. Similarly, Richard Jefferies (1885), depicting in prose the rustic beauty of England's countryside gives us an echo of Lamarckism. In speaking of a dairy maid seen on a farm, he says, "her arm . . . was very large —some might have called it immense . . . So immense an arm was like a revelation of the vast physical proportions which our race is capable of attaining under favorable conditions."

The sombre and eccentric French poet, Charles Baudelaire, later eulogized by Swinburne (*c.* 1850) speaks in his "La Geante" of the time

> When nature in her mighty fancy
> Every day conceived monstrous children.

Turning to the contemporaneous Russian novelist, Ivan Turgenev (1818–1883), we have the tale of Gerasim, "one foot taller than ordinary men," and throughout his life possessed of titanic strength. Children still read "Gulliver's Travels" and "Jack the Giant Killer" so that it is not unexpected that we should today find newspaper accounts such as the following, which, regardless of possible misquotation in content, is not unlike those of the English papers of 1730. This one is from the *Baltimore Sun* of June 15, 1930.

> Salem, W. Va., June 14. Excavation of two mounds near Morgansville, about twelve miles west of here, has revealed what Prof. Ernest Sutton, head of the history department of Salem College, believes is valuable evidence of a race of giants who inhabited this section of West Virginia more than 1000 years ago.
>
> Skeletons of four mound builders, indicating they were from seven to nine feet tall, have been uncovered. Professor Sutton believes they were members of a race known to anthropologists as the Siouan Indians.

Mention might be made of such huge images as the Colossus of Rhodes, the great monolithic sculptures at Easter Island, carved by the ancestors of the present-day Polynesians, the figure of Pallas Athena on the Promontory of Sunium, or the twelve 52 ft. human statues at Karnak, Egypt; but that they are the result of mythological conceptions or public spirit is undoubted, and this is also true of the colossal statue at Magdeburg and the effigies of Og and Magog at London. The Custom of giant civic statues seems in Europe to have arisen at the time of the Emperor Otho II when in about the year 980 the people of Magdeburg erected to him a statue in their court of judgment as a token of gratitude. In more modern times we have as examples, the statue of Roland in front of the Rathskeller at Bremen, the statues of Lincoln and Hindenburg, and the Confederate memorial carved in rock on a mountain side at Atlanta. As to Og and Magog whose statues, 14 ft. high, still stand in the guild-hall at London (1929) nothing remains but the legend that they were descendants of a race of giants who once peopled England, which race arose in the manner given in the Biblical account, and that, with their brethren slain, they were captured and compelled to serve as porters at the gates of the royal palace in London. So Antwerp has its Antigonus (40 ft. high) and Douai its Guyant (22 ft.).

B: HISTORICAL ACCOUNTS. With due allowance for the fanciful, we may now turn to more reliable historic accounts of gigantism, noting first that the tallest giant on record today appears to have been an Austrian, whose skeleton in the collection of the Anthropological Society of Paris measures 8 ft. 4½ in., and once more pointing out that the manifestations of acromegaly are inseparably interwoven in a great many of these accounts.

The first notation is again Biblical, the account in Deuteronomy III: 11, of Og, King of Bashan (B.C. 1451 [?]):

"For only Og, king of Bashan remained of the remnant of giants; behold, his bedstead was a bedstead of iron: . . . nine cubits was the length thereof and four cubits the breadth of it after the cubit of a man."

The cubit of a man is the space from tip of finger to elbow or ½ yard. Og's bedstead therefore was 13½ ft. long and judging from proportions Og was about 9 ft. tall.

The famed Goliath of Gath (I Samuel XVII: 4) (B.C. 1063) is credited with having been 9½ ft. tall and another account (II Samuel XXI: 15–22) (B.C. 1018) concerns a son of the giant of Gath, one with supernumerary digits:

"And there was yet a battle in Gath, where was a man of great stature, that had on every hand six fingers and on every foot six toes . . . and he also was born a giant."

In Roman times, Pliny the elder, first century A.D. (Hist. Nat., 7: 16) makes note of several men of extraordinary stature, saying:

"The tallest man seen in the time of our Emperor Claudius came from Arabia and was nine feet and as many inches in height; in the time of the emperor Augustus, two men half a foot taller, Pusioni and Secundilla by name, were to be seen on exhibition . . ."

It is in the case of the giant Roman Emperor, Gaius Julius Verus Maximinus, who reigned 235–238 A.D., that signs of acromegaly are first brought out by historians, although, as in other cases, with some exaggeration. The emperor is described by Herodian, a Greek historian of the third century A.D., as being of great bulk, 8 ft. 6 in. to 9 ft. tall and with fingers so large that he was in the habit of using his wife's bracelet for a thumb ring.

His shoe was a foot longer than that of any other man and his strength was such that it is said he could draw a carriage which two oxen could not move. Polyphagia and polydipsia are indicated by the statement that he generally ate 40 lb's. weight of flesh and drank 6 gallons of wine every day.[1]

The mode of regarding and treating polyphagia and polydipsia up to the seventh century A.D. is given by Paul of Ægina (625–690) who in speaking of abnormal thirst and quoting largely from Galen (De Caus. Symp. L. C.) says:

> A protracted thirst may be supposed to be occasioned by dryness or heat of the parts, by which the liquids pass from the mouth to the stomach; and the natural cure of dryness is sleep and heat, watching, . . . I have known persons siezed with unquenchable thirst who had eaten of the vipers called Dipsades, and others who had got drunk on old wine.

Oribasius (4th century A.D.) regards the subject in about the same way but contributed another method of treatment: ". . . But the best remedy for thirst is the seed of the black lettuce, chewed, or the liquorice; or seed of the cucumber may be retained in the mouth."

Similarly, Fabius Paulinus (Marc. Praelect. 315) gives a remarkable exposition of the philosophical doctrines of the ancients on this condition, remarking that there are three distinct species of thirst:

> The first is occasioned by the fauces and oesophagus being hotter and drier than natural. This state, if it supervene upon sleep, is to be cured by watchfulness and *vice versa*. In the second, the veins over the whole body are filled with hot and acrid humors. In the third, the mouth of the stomach, lungs, or heart are preternaturally hot or dry.

We may gain another perspective from Paulus Ægineta concerning the manner in which inordinate hunger was regarded. He says:

> If want of appetite should pass into the opposite state, I mean an excessive atrophy, called bulimos, we must resuscitate such persons with roasted pork, or kids, or other savory things; and, in a word, with every strong-scented thing, if the acute stage of the fever be past. We must bind the extremities, and rouse, by pinching the cheeks, and pulling the hair and ears.

Aetius, Oribasius, Avicenna, and Haly Abbas agree with Galen (De Caus. Sympt. 1, 7) inordinate hunger is occasioned by a want connected with atony and coldness of the stomach. The originality of the Byzantine physician Alexander (6th cent. A.D.) is indicated when he rejects such dogma, saying in regard to treatment that it is vulgar practice to bind the extremities and rouse by pinching or to give opium as some do. Instead, he recommends food difficult of digestion.

With such exceptions, the period from Roman times to the Renaissance is filled with folklore, which was probably to some extent, allegorical in that the great stupid giants described may well have been barbaric tribes exaggerated into monsters in the legends of those who dispossessed and slew them. Tales were revived of the finding of the remains of Homer's one-eyed Polyphemus in Sicily, the thigh bone alone being 120 ft. long, but this recalls another medieval legend concerning Guy, Earl of Warwick who was credited with the slaying of a monster 6 yards long, and according to Wood (1868), a rib bone is exhibited at the castle as proof. The rib however is that of an aurochs, little larger than the present-day cow.

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[1] Capitolinus—Maximini Duo; Herodian vi, 8, vii, viii, 1–5, *Zosimus* i, 13–15.

From the sixteenth century onward, however, more or less complete accounts of gigantic human remains or of gigantism, often times coupled with acromegalic phenomena, become increasingly common. Up to the nineteenth century, these are of interest not because of an advance in the understanding of the condition, since the ancient doctrines already mentioned played a part in hindering men from such speculation but rather as instances of hyperpituitarism which aside from the mere fact of gigantism, show alterations later seen to indicate pituitary dysfunction.

Sternberg (1897) points out the existence of a portrait, dated 1553, of a giant of the court of the Elector of the Palatinate, Frederick II. The work is preserved in the Abras-Schloss in the Tyrol. It was painted life-size by the court painter and shows typical signs of acromegaly.

Matteo Realdo Colombo, sometimes spoken of as the discoveror of the pulmonary circulation, describes in his book "De re anatomica," 1559, a skull, the largest he had ever seen, which is notable. Colombo was in the habit of examining skeletal remains in the catacombs and churchyards. The lower jaw is stated to be greatly enlarged and adherent to the skull in such a way as to make free movement difficult. This suggests the observation of Buhl (1878) on a giant with hyperostosis of the bones of the face and cranium.

In 1567, Johannes Weyer (Wierus), Dutch surgeon and an active opponent of superstition and witch-burning, tells in his "Medicarum Observationum rariorum," of a giantess he had seen. There is hardly a suggestion of acromegaly but he gives some very interesting speculations as to the cause of the amenorrhea and general apathy found in the case. I will give the account in full:

> Moreover in this treatise it is not proper that I should pass over a rare and memorable history, worthy of explanation. I saw a virgin who, because of the gigantic size of her body, travelled to cities in various regions and in those places exhibited herself in hired buildings to all who paid an offering, from which collections she and her mother sought a livelihood. I also, having entered [to see her], inquired by diligent questions and I learned from her replies and those of her mother that she was born of parents both of whom were of short stature and that none of her ancestors exceeded the ordinary height of men and that this girl from the time of her birth to her twelfth year was of small stature: but at the time when she had reached her fourteenth year and had struggled with her menses for some time, they suddenly ceased and she began to increase in size, all of her members proportionately formed so that nothing seemed unusual. Unless I am mistaken, when I saw her she was in the twenty-fifth year from the time she had noticed the cessation of her flowing. Nature required that bloody excrement to nourish and conserve so great a mass. She enjoyed good health in the meantime, her form was not attractive, her temperament was simple and stupid and her whole body was sluggish. The physical qualities which God had infused into her body in the beginning, while sufficient for a body of ordinary size, when dispersed afterwards in that vast mass of flesh could not show themselves with the same strength

as they would in a body of ordinary size.

Becanus, physician to the sister of Emperor Charles v, in 1569 ("Origines Antwerpianae"), tells of a youth nearly 9 ft. tall and of a man almost 10 ft. in height, this one living near his own residence in Flanders, while the Swiss physician, Felix Platter, gives the following account:

> I saw a young man at Linenburgh called Jacob Damman, who for his extraordinary stature was carried through Germany to be seen. Anno 1613 he was brought to us at Basel; he was then 23½ years of age, beardless as yet, strong of body and limbs, save that at that time he was rather sick and lean; he was nine feet complete; the length of his hand was one foot six inches.

As time goes on these accounts become more accurate, as seen in the following:[1]

> An account of one Edmund Melloon, born at Port Leicester, in Ireland, who was of an extraordinary size, communicated by Dr. William Musgrave, Fellow of the College of Physicians, and R. S.
>
> The measures of some of the parts of an Irishman shown at Oxford, was communicated to me by Dr. Plot. He was seven feet six inches high. His finger 6¾ inches, of his cubit two feet two inches, of his arm three feet 3½ inches, from the shoulder to the crown of the head 11¾, his name Edmund Melloon, he was aged nineteen years, anno 1684, and born at Port Leicester in Meath, Ireland.

Plot however was little touched by scientific curiosity regarding the condition, for in his "Staffordshire" (1686), he relates of the finding of bones of extraordinary size and adds:

> Mr. William Feake gave me the jawbone of a man or woman with a tooth yet remaining in it, near double the magnitude of those men ordinarily have, which is enough to show that mankind is no more abated in stature than it is in age, the world still affording us a Goliah now and then as well as of old.

Cheselden,[2] the "surgeon-anatomist," in 1712, reports the finding, "in an urn marked Marcus Antonius in the place of the Roman Camp near St. Albans" of the ilium, skull, and bones of the lower extremity of a man who was, from comparative measurement of the leg bones, nearly 8 ft. tall though such comparison would tend toward exaggeration since the long bones of a giant are of disproportionate length. These bones are beautifully illustrated in his "Osteographia" (1723).The skull is in such a position that the sella turcica cannot be made out.

At this time we enter into a most interesting chapter in the history of hyperpituitarism, the tale of the giant grenadiers of Potsdam, pride of Frederick William of Prussia, the first of that name, who early during his reign acquired what amounted to a mania for giant soldiers. In 1713, on ascending the throne, he organized two battalions of 600 men, all above 6 ft. in height and during the next two decades, giants were kidnapped from all over Europe and placed in forced servitude; so that by 1740, at the death of Frederick, the army had an enrollment of 3030 giants. Women of extraordinary stature were obtained as wives for some of the men in order that the unique trait might be perpetuated. However, the fertility of giants being as it is, little came of that remarkable experiment. The men were magnificently clothed, but, as to their symmetry of body, Baron

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[1] *Phil. Trans., London,* 20, 184, 1698.

[2] *Phil. Trans.,* vol. 28.

Bielfield, who visited Potsdam in 1739 to watch the regimental review, makes the following observation:

> They appear to me like so many walking colossi but nature seems to have been entirely occupied with giving them enormous stature, for they have little proportion of figure being for the most part either ugly, bow-legged, or ill made in some parts of their bodies so that the regiment in general is more marvellous than fine.

Maximilian Christopher Müller, born in Leipzig in 1674, was enrolled in the regiment, but according to Fassmann, an annalist of the time, his legs swelled to gigantic size and he was discharged as unserviceable. In 1733 he came to London and of him Caulfield (1819) says:

"He attracted considerable notice in London where Boistard drew his portrait from life in April 1733. At this time Müller was fifty-nine years of age and measured nearly eight feet in height; his hand measured a foot, and his finger was nine inches long."

The portrait, also shown in Caulfield, depicts Müller as having a face and head of extremely large size. In addition to Müller, the most famous giants of the eighteenth century were James McDonald, Charles Byrne, and Cornelius MacGrath, the accounts of whom indicate the rising interest in the condition. McDonald, only 7 ft. 6 in. in height, was least fortunate as to publicity. An account of him is given at the announcement of his death, in the *Annual Register* for 1760, where it is stated:

> His eating and drinking, while his health continued, were more than proportional to his height; for he could eat nearly four pounds of solid meat at each meal and drink strong liquors in proportion without being in the least intoxicated . . . His limbs were larger than his height required; and his hands and fingers were of such prodigious size that a ladies' bracelet might have served him for a ring.

Charles Byrne, the "Irish giant," called also O'Brien, credited with being 8 ft. 4 in. in height, died in 1783 at the age of twenty-two. The interest displayed in him after his death was no less than in life, especially among members of the medical profession of the day. The journalists were aware of this, as the following newspaper account (July 13) may indicate:

> Since the death of the Irish giant, there have been more physical consultations held than ever were convened to keep Harry the Eighth in existence. The object of these Æsculapian deliberations is to get the poor departed giant into their possession. For which purpose they wander after the remains from place to place and mutter more fee, faw, fums than were ever breathed by the whole gigantic race when they attempted to scale heaven and dethrone Jupiter.

In accordance with Byrnes' request that the physicians might not have his body, preparations were made to sink it at sea. However, today, the skeleton is to be seen preserved in the Museum of the Royal College of Surgeon in London and the tradition is (vide Gould and Pyle) that John Hunter, the anatomist, gave £500 to £800 for the body. The skeleton, 7 ft. 7 in. tall, is quite symmetrical but evidences of acromegaly (Cunningham) are seen in the excessively large lower jaw. There is dilatation of the pituitary fossa and the size of the feet are indicated from measurement of the soles of Byrnes' boots, which are also preserved in the museum. These are 15⅛ in. in length, contributory evidence for acromegaly.

The original accounts of Cornelius MacGrath (born 1737) are of even greater interest, for the skeleton, now preserved in the Museum at Trinity College, Dublin, and described in detail by Cunningham (1891) is the oldest museum specimen of acromegalic gigantism now known. In 1756, MacGrath while on exhibition in Germany was depicted by Maag in an engraving, as a subscript to which is the following:

> Cornelius MacGrath, born in Ireland on the 10th of Jan., 1737, is 19 years old and possesses an uncommon stature and strength, so that Europe may boast of having produced in his person a true giant; considering that his wrist (arm at the hand) is 10½ inches thick, and that his middle finger is as long as the hand of a full grown man.

From the *London Magazine*[1] is gained another account:

> Cork, July 24: There is now in this city one Cornelius MacGrath, a boy of 15 years 11 months old, of a most gigantic stature, exactly 7 feet 9¾ inches high; he is clumsily made, talks boyish and simple, he came hither from Youghal, where he has been a year going into the salt water for rheumatick pains, which almost crippled him, and the physicians now say were growing pains, for he is grown to the monstrous size he is of within these twelve months . . . his hand is as big as a middling shoulder of mutton; the last of his shoe which he carries about him measures 15 inches.

A letter written concerning MacGrath by the Italian physician Giovanni Bianchi (1757) is of great value, for while it may or may not be accorded the dignity of a medical account as such, yet here for the first time, though the account of Wierus bears some resemblance, do we see a change in attitude concerning the condition of gigantism: It is no longer taken for granted in the light of ancient doctrine. I give it here in its most significant parts:

> The giant when sitting down was as tall as ordinary men standing; when he stood on his feet I had measured him with a cord, and found that he was 7 Parisian feet tall, i.e., 2 feet taller than the stature of ordinary men . . . His hand, from the middle finger to the end of the palm was one Parisian foot, i.e., 5 inches longer than mine, which is not of the smallest. His head, shoulders, and other parts were of a length and thickness proportioned to his immense body, which nevertheless had not greater strength than other men, nor proportioned to the size of his limbs . . . As for me, I believe that this growth which goes on so immoderately in his body is a malady, because he says that he is the son of parents who are of an ordinary stature, and that up to the age of eleven he was of ordinary height; but that afterwards he began to grow in this immoderate manner.

After his death, MacGrath's body was taken to Trinity College, where it was dissected; again the first autopsy of an acromegalic giant. The skeleton measured but 7 ft. 2¼ in. From it, MacGrath was knock-kneed, and slightly scoliosed in the lumbar region. The cranium shows a widely dilated hypophyseal fossa. His foot measures but 11 ¾ in. in length of bony structure so that what enlargement actually existed was of the soft parts. Other evidences of acromegaly are the disproportionate size of the face in relation to the cranium, the great size of the mastoid processes, and expansion of the air sinuses of the skull.

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[1] 5: 21, 1752.

An echo of the Habicot polemic appears as late as 1805 when Skinner attempts to explain an extreme asymmetry in a giant of his description on the basis of abnormal variation characteristic of the growth of giants. Having made a voyage to Peru in 1791 and again in 1794 and having thereon encountered the giant Basilio Huaylas, he describes this giant in "The Present State of Peru." After quoting Santa Fe de Bogota relative to a giant named Pedro Cano, 7 ft. 5 in. 3½ lines in height Spanish measure, who required shoes half a yard in length, he continues with a very good account of what seems another acromegalic giant, this time an Indian. He says, with good logic:

> Daubenton, in controverting the relation of Habicot principally founds his objections on the disproportions in the limbs of the latter . . . We shall not attempt to justify Habicot's relations but it appears that the arguments opposed to him have little or no weight. In giants as well as in dwarfs, that skilful and beautiful symmetry which nature displays in the rest of her works is not to be sought. They are varieties, or it may be said, monstrous productions which deviate from the natural order; and it would therefore be unreasonable to deny the existence of men of a very gigantic stature because they do not observe a proportion in their limbs.
>
> To proceed to Basilo Huaylas. This Indian, a native of the province of Castro-Virreyna, aged 24 years, is pretty nearly of the same stature with the giant Pedro Cano. His height is 7 Castilian feet, 2 inches and a few lines. His limbs are out of all due proportion; from the waist upwards they are monstrous. The head occupies about ⅓, the shoulders have a breadth of ⅚ of an ell, and the arms are so long, that when our giant stands erect, the points of the fingers touch the knees. From the waist downward, the limbs are of smaller proportions. The right leg is shorter than the left; a defect which is said to have arisen from a blow which Huaylas received in his infancy. In the generality of giants, the bones of the legs do not enlarge in proportion; being unable on this account to support the heavy weight of the body, the inferior extremities become crooked and enfeebled. It was thus that the legs of the giant described by Haller were weak and misshapen, and those of our giant come under the same description. Notwithstanding they are small, his feet may be brought into competition with those of Pedro Cano.

The print of Huaylas in the work shows a marked anteroposterior enlargement of the chest.

Other giants are described in the nineteenth century, but the first work showing any advance upon the note of Bianchi does not come until 1872, in the writings of Langer. Giants of the nineteenth century are of little interest save as they have helped link the condition with affections of the hypophysis. This will be considered further in connection with the discussion of acromegaly without gigantism.

III. ACROMEGALY—HISTORICAL

A. GENERAL CONSIDERATIONS. Despite contributions from art, and the aforementioned partial hypertrophies of paleopathology, the first clear-cut case of acromegaly without gigantism belongs to the eighteenth century. Moodie calls attention to the following relevant detail:

> Sir Auckland Geddes suggests that the Piltdown skull (Eoanthropus) is pathological, basing his conclusions on the remarkable thickness, coupled with the characteristic outline of the temporal ridge, which can only find their diagnosis in acromegaly, and that it is to this that

the specimen was preserved. These may however be due to Paget's disease.

Felix Regnault (1908) states that the antique terra cotta heads unearthed in Greece show acromegalic characteristics but Holländer (*Plastik und Medizin*, 1912) questions the worth of such a diagnosis, giving therewith illustrations of a number of the heads. The objection is well taken for the heads may well be caricatures. Holländer adds further:

> In 1727 there was unearthed in the vicinity of Rome a figure of Maccus, the fool character of the Atellan comedies of the early Roman times, which shows principally a large nose, pigeon breast, kyphosis, and overlarge feet. Another figure was recently unearthed in the vicinity of Naples. It is from this Maccus that the south-Italian Polichinelle is derived, and from this the present day Punch. The shape of the head and body much resembles the picture in acromegaly.

Souques (1896) has enlarged upon the subject but it seems that the same objection holds as in the case of terra cotta heads. There is the possibility that the originals for the figures may have had the malady under discussion yet to base any definite view on such evidence is hardly justifiable. Similarly, Mark (1912) makes note and gives a photograph of a 13th century stone figure, one of the many adorning Rheims Cathedral, which, with its large hands, feet, and facial eminences, he thinks closely simulates the picture in acromegaly.

Concerning the kyphoses, so often found late in the disease, Morgagni (1661) pioneer pathologist, sums up in excellent style the attitude before his time:

> But in regard to the other causes from which distortions of the spine begin for the most part to arise and by which they are increased, and continued, if you consult the ancients, I fear you will not be able to find anything satisfactory; I mean, where you recede from that kind of causes which evidently proceeds from an injury which happens externally, or from violence. Nor is it to be wondered at since in ancient times the bodies of men were not dissected, much less those of gibbous persons.
>
> And after they at length began to dissect human bodies, if they happened to light on bodies of that kind it seemed sufficient to them to have declared, in one word that there was a "bad composition of the bones," as it did to Vesalius.

(Epistola de Radice Chynae.)

B. HISTORICAL ACCOUNTS 1772–1886. 1. The first medical description of acromegaly is found in the last part of the 18th century, to be followed later by a series of undiagnosed or wrongly diagnosed cases until recognition of the disease entity in 1886. The first description is that of Saucerotte who, in 1772, sent a communication to the Académie de Chirurgie regarding the case of the Sieur Mirbeck and after the death of Mirbeck, wrote a complete account which was printed in *Melanges de Chirurgie* (1: 1801). It is this observation which I will give at length. Saucerotte speaks of a man:

> An inhabitant of the village of Mangonville some four leagues from Luneville, age 39 years, height 5 feet 2 or 3 inches, of a thin and slender stature, for a period of about six years noticed that all the bones of his body with the exception perhaps of his teeth grew little by little without elongating (those at least which might make an individual grow in height) so that he at this time estimated the bones to be double the size they were at the beginning of the six year period.

It is certain that he is an extraordinary man with regard to the circumference of his body in general and with regard to each one of his members in detail, not that the muscles are increased, since they are flaccid and atrophied and show that it is at the expense of their tissue that the bones have acquired unnatural weight, if it is possible for me so to express it. That man finds it necessary to have his hats made, not finding any large enough for him; his eyes are actually even with the rest of his face because of the growth of the bones of the orbit which have carried those organs ahead; his lower jaw has without doubt found it easier to grow than the upper since it is a separate mobile bone, with the result that the lower incisors project a finger's breadth in front of the upper. It is not the same for the molar teeth quite probably because the pterygoid and masseter muscles have opposed the enlargement of the lower jaw on the sides.

The lower lip is perhaps the only soft part that has followed the progressive enlargement of the bones, since it is very large; the vertebral column is of singular size and the same is true of the clavicles; the scapulae and innominate bones have grown greatly the same as the ribs and the sternum so that the breast is prominent and the stomach flat because of atrophy and emaciation of the soft parts. The ribs are 1½ inches wide and appear in some places to border one on the other. The feet and the hands may be compared as to size with those of an ordinary person who has an enlargement, or as is said, a full skin.

The legs appear at first inspection out of proportion to the rest of the body but that is really not so since they consist mainly of bone, having hardly any soft structures. In spite of that the Achilles tendon is almost double that of any other adult person.

That individual is unable to attribute the growth of the bone to any illness; it is true that he has always been a hearty eater but he is also accustomed to much exercise being one of the great farmers of the province. Actually he is almost always sleepy, no doubt because of compression of the brain by the expansion of the bones of the cranium. For about two years he has experienced an oppression of the chest no doubt because of embarrassment of the lungs. I think it to the point to say that since the growth has reached a certain point, the pulse has been so small that one is hardly able to feel it.

The patient has taken all sorts of remedies and purgatives without being able to divert the nourishment from the bones to the flesh. But why have the nourishing juices left the flexible and easily distensible vessels to flow in the hard ones which offer considerable resistance to dilatation? He suffers, I forgot to mention, general pains which he thinks to be rheumatism; but it is better to presume that they are the result of distension of the periosteum and the other membranes which surround the bone.

In 1766 the patient weighed 119 pounds and last year 1768 in spite of the atrophy of the flesh . . . The lower jaw which projects anterior to the upper a finger's breadth is 18 inches from one condyle to the other, measurement by way of the chin. From the lower part of the chin to top of the teeth measures four inches which makes it (the jaw) descend low and appear to come to the upper part of the sternum so that the patient appears to have no neck.

Movement of the joints is difficult especially the small ones as those of the fingers and toes for example. The urine was analyzed fresh and after standing, and Harmont, physician to the patient has not been able to find any of the principles which one ordinarily finds, especially the particular sediment which often appears as a little milk and at other times absolutely white and glairy.

In summary of all the particulars of that observation may one not conclude that in this patient the sediment has been carried to the bones?

During the course of the year 1771 the patient had a constant increase in the volume of his bones and in May 1773 he had no more oppression and felt pretty well but, in July 1773, after fifteen hours passed in diversions which deranged in their fashion his ordinary life, he became quite ill while in repose; his stomach and his lower abdomen became hard and tender, with accompanying nausea. His mouth became bad, his tongue coated with a yellowish crust and there was much eructation. Consequently M. Nöel gave him a light emetic, some purgatives and several lavages. A few days later the respiration became labored and the head heavy; the patient showed a general dejection; his whole body became swollen; the left eye was almost out of its orbit; finally there formed at the neck a tumor as large as a pound loaf of bread, of a soft and emphysematous nature, which successively appeared and disappeared.

The swelling began to diminish when the physician M. Nöel was called some distance for a confinement, during which time someone administered against his advice several doses of hydragogue powder. The lower intestine became inflamed followed by hemorrhoids. At the time treatment by lavage was not possible and the patient died.

Neither the attending physician Nöel nor Saucerette made any attempt to classify the ailment, Saucerotte making but two conjectures: that the sediment of the urine had been retained by the bones and that the blood with its nourishment had taken to the bones rather than to the flesh. Something of this last surmise though differently applied is found, as will be seen, in the conception of Klebs (1884) regarding the cause of growth.

Nöel in 1779 published an account of the same case, seven years after Saucerotte's communication. Nöel gives essentially the same observation though in slightly greater detail as to treatment, with menthol infusions, emetics, hydragogues and diuretics. As to its understanding he adds:

> That observation is very interesting, as it is but rarely at that age that the bones acquire prodigious growth without manifesting tumors, caries, or particular inequalities in their substance; in which that swelling differs from such as appears close to the articulations, as with rachitic infants. It appears that such bony growth is able to take place only through excess of lymphatic tumor or nourishing juices which are carried in preference in the parenchyma of the bone to augment their volume at the expense of the flesh which atrophies. Whatever the research one makes to find the cause of that bizarre ossification, little may be attributed save to the excessive appetite of the patient.

Thus, in the same period in which little attention is paid to gigantism in point of view of causality, acromegaly is at once recognized to be entirely unnatural and a disease.

After Mirbeck's death, his wife refused to permit autopsy and was indeed so faithful that she took residence opposite the cemetery to see that the remains were not disturbed. After her death, some bones were procured from the grave and are to be seen in the Musée Depuytren in Paris.

2. Plate XLV of the atlas of the phrenologists Gall and Spurzheim (1818) shows the base of a cranium in which Patry (1908) points out:

1. Enormous dilatation of the frontal sinuses.
2. Hypertrophy of the clinoid processes.
3. Augmentation of the pituitary fossa.
4. Exaggerated development of the grooves of the sinuses.

5. Considerable expansion of the occipital (i.e., thickening at the level of the torcular Herophili).

"—from which it is to be considered with certainty as the base of an acromegalic cranium."

3. The distinguished dermatologist, Alibert, in 1822, gives another case of acromegaly, calling the patient a "scrofulous giant." Nothing save the description is contributed. He says:

> Recently I exhibited at my clinical lectures Pierre, age 32; he was born feeble and remained small till puberty but at that time he began to grow until he attained the height of six feet four inches; his arms, his hand, his legs were of proportionate size, that is to say, of double the ordinary volume; his face was oblong, his tongue of considerable size. His voice was harsh, resembling that of an actor imitating an old man . . . He experienced aching in his legs over the loins. He was tormented by such intense thirst that he drank up to 18 bottles of pure water a day. That colossal man urinated with such abundance that he produced a sort of inundation in the places where he happened to be. He had other infirmities that are useless to describe and he showed no attraction toward the opposite sex.

4. The next description to appear is that of Magendie, who in 1839, relates in a vivid manner concerning two women under his care at the Hôtel Dieu, saying that the hypertrophy is possibly of nervous origin. The account is as follows:

> An extraordinary activity of the nutrition is in general linked with a particular state of the nervous system. That particular state is a bit vague but I wish to give you the assertion only as conjectural so consequently permit me not to use the terms too positively. There are at the moment at the Hôtel Dieu two women who offer at its maximum that manner of development which it is conventional to term hypertrophy. One is a true female monster, head, arms, trunk all of an enormous volume; her tongue is as large as that of a calf, her fingers as bulky as four of mine. Her voice is that of a man, the sound full and deep. I do not doubt that her larynx also is hypertrophied. The other woman is similar but on a smaller scale. Being younger and growing more rapidly from day to day, I do not doubt that she will soon rival her senior. Nothing explains the enormous growth in these two women.

5. Chalk in 1857 describes under the title, "Partial dislocation of the lower jaw from an enlarged tongue" another case in a woman. Here again only concise description is given:

> By a constant and long-continued pressure of an enlarged tongue, the condyles of the inferior maxilla have been partially dislocated from the glenoid cavities so that this bone has been thrust downwards and forwards (vid. Fig. 13) projecting about an inch beyond the upper jaw and forming a prominence beneath the chin . . . At the age of 30 the surface of the body became generally swollen, which after a time partially subsided. The swelling is now confined chiefly to the hands and face. It was at this period that the tongue began to enlarge, and in 12 months afterwards an altered condition of the lower jaw was first observed.

Chalk advised a band around the head to hold the jaw firmly in place. He reports improvement thereafter.

6. The first connection of acromegaly with the pituitary comes from Verga's case (1864) which was the first of the purely acromegalic cases to be autopsied. A woman of fifty-seven was regarded as afflicted with "prospectasia":

> Maria B— is from Milan . . . Since she was a little girl she has been subject

> to obstinate ophthalmia, which was relieved by local treatment, but has recurred frequently during all her life. Her general health changed after the cessation of menstruation (age 29) . . . What also became noticeable at this time (age 35) was that her limbs, which formerly were somewhat thin, began gradually to increase, so that three times she was obliged to cut the ring on her finger; her face in particular became monstrous.

The woman died at fifty-nine from typhoid and was autopsied by Pedretti. This autopsy is particularly interesting:

> The cadaver, of which the nutrition had been good, was rich in fat. Pus was found in the external auditory meatus.
>
> At the opening of the cranium there flowed out a bloody serous fluid. What was most notable in that cavity was a tumor of the volume of a big nut, extending on the sella turcica and displacing and compressing the optic nerves and the mammillary bodies and originating by a peduncle in the body of the sphenoids. The pituitary gland is not to be found so that one does not know whether it has disappeared under pressure of the tumor or whether the tumor is simply a degeneration of that organ.

Verga discusses the expansion of the bones of the face, with retention by the cranium of its ordinary size and concludes:

"That is why I consider that cranium as a very beautiful and rare example of 'prospectasia,' wishing in one word to indicate that fault of nutrition and of general development of which the principal symptom is a monstrous aggrandizement of the face."

From this time until the work of Marie, no essential progress was made, although 6 scattered cases are to be found with varied diagnoses but with the condition recognizable from the description. I will make note of these.

7. Lombroso, also in Italy, four years later (1868) described another instance in a man of thirty-seven but contributed nothing more than a general description of enlargement with measurement in life of the extremities.

8. In 1877, Dr. Henri Henrot, at Rheims, made a clinical report together with autopsy findings on a man of thirty-six together with the opinion that it was a case of myxedema, notwithstanding hypertrophy of the hands, feet, mandible and nose together with muscular weakness, lingual hypertrophy, and intense thirst. Autopsy findings include a dilated hypophyseal fossa and "in place of the pituitary body an ovoid tumor the size of a small hen's egg." The report parallels that of Wadsworth published in Boston in 1885 as

9. "A case of myxedema, with atrophy of the optic nerves."

10. In the same year (1877) an advance is made in the case of the actor Ghirlenzo ni described completely and with autopsy by Dr. Brigidi of Florence. Although diagnosis of rheumatism deformans is made, the significant contribution is the observation of a hypertrophied pituitary together with the first microscopic examination of a tumor of that body. The details of that examination are not elaborately given. They are:

> The pituitary gland, weighing 14 grams was of an irregularly spheroidal shape . . . the cut surface was gray with yellow flecks here and there. The consistency was equal throughout save at the superior segment which was almost as soft as the cerebral pulp. The microscopic examination of the fine parts of that body showed a varied texture. In some places the con-

nective tissue was developed, in contrast to which the interstices appeared big and wide possibly because it contained a fluid or semi-fluid substance which was dispersed in fixing the preparation. In other places the texture resembled that of the medullary substance of lymph glands; the interstices showed nothing more or at least only slight traces of that substance and by contrast the tissue was infiltrated with small and slightly granular cells. But in general, the connective tissue presented a hypertrophied development and the blood-vessels were proportionately enlarged.

11. We may in passing take notice that Taruffi (1878) described in detail the skeleton of an acromegalic giant in the Bologna Museum and (12) that Ellinwood in San Francisco in 1883 described a typical case of acromegaly as Paget's disease.

13. Fritsche and Klebs in 1884 give a very complete account, with autopsy, of Peter Rhymer, and consider it a case of giant-growth, although Rhymer was but 6 ft. in height. They make note of "a tumor of the hypophysis . . . liquid in the interior, enveloped by a thin membrane, rich in vessels . . . into which is continued the infundibulum."

So it is that with the complete picture already so often described, though unrecognized as such, and with tumors of the hypophysis noted in cases that were carefully examined we come to 1886 to the work of Pierre Marie, in which the acromegalic state is for the first time set off as a disease in itself. He says:

> The two cases which are the subject of this article were observed in Professor Charcot's clinic. They present a disease which has not yet been separately described in all its features. Yet it seems to possess a special morbid entity, for among all the patients are found the same symptoms and characters. Whether this disease is very rare it is difficult to say, as so little has hitherto been known concerning it.

After discussion of cases, and some speculation without mention of the hypophysis he draws the following conclusions:

> 1. There exists a disease specially characterized by an hypertrophy of the hands, feet, and face, which we propose to call acromegaly; that is to say hypertrophy of the hands and feet (not because actually the hands and feet are alone affected during the course of the malady, but because their increase is an initial lesion and constitutes the most characteristic feature of the affection).
>
> 2. Acromegaly is quite distinct from myxedema, and from Paget's disease (osteitis deformans), as well as the leontiasis ossea of Virchow.

IV. THE PERIOD OF CORRELATIONS

ACROMEGALY AND GIGANTISM: 1886. The account of Marie was followed by an ever-increasing number of cases and progress is so rapid that here we seem to have a microcosmos in contrasting developments in these last few years with the centuries previous. The great interest brought up a number of theories to account for this queer acromegalic state. Among these are:

1. The nervous theory already alluded to by Magendie.

2. The theory of (atavistic) anomalous growth of Freund.

3. The thymus theory of Klebs which assumed that growth, both partial and general hypertrophy, was connected with thymus function, since this gland is enlarged in youth and was found so in the acromegalic Rhymer. As a result of this hypertrophy the thymus was assumed to

proliferate excess "angioblasts" which, on reaching the parts where blood flow was supposedly slowest (i.e., the acra), remained to give rise to blood vessels, thereby giving these parts increased nutrition. Klebs noticed the pituitary enlargement but to him it was but part of a general hypertrophy. However, the enlarged thymus has since been seen to be by no means constant, so that Klebs merely selected the wrong organ as a basis for theorizing.

4. The hypophysis theory resulting from correlation of the hyperplastic gland with the condition.

In 1887, the year after Marie's announcement, Minkowski called attention to the constancy of the pituitary enlargement with the conjecture that it was of significance, the first to definitely note this relationship. He comments:

"It is noteworthy that in all cases so far dissected and really studied there is to be found together with a greater or lesser hypertrophy of the various internal organs an especially striking enlargement of the hypophysis cerebri."

Souza—Leite in his thesis (1890) had come to no conclusion regarding etiology but in the following year, Marie (1891) called attention to the increased interest in the pituitary, saying:

> The constant hypertrophy of the pituitary gland, appears to be a fact acquired in the pathological history of acromegaly, and from new case observations, and meanwhile no one has dared to fix his attention on that organ since one knows nothing of the rôle which devolves upon it. Yet, in recent times, several authors have tried to prove that the hypophysis is not an indifferent organ but that it appears to have functions to fill in extra-uterine life, contrary to the opinion of W. Bath.

This hypophyseal theory was elaborated upon and the gland became the object of a vast amount of experimental work all of which is admirably summed up in the recent review of Professor Geiling (1926).

The differentiation of gigantism as a morbid entity is a later development, although it is through similar correlation that connection is established with the practically constant pituitary tumor. In Langer's work on giants (1872), that author brought out more in detail the old observation that there are two types of giant skeletal remains, one of which he calls the "normal type" and the other "pathological." Virchow, in 1889, was struck by the observation that acromegaly is partial and gigantism general hypertrophy; but after some discussion, chose to be conservative saying: "after these experiences I can say quite briefly that the differences between giants and acromegalics remain nevertheless very great."

Cunningham (1891), in his excellent discussion of Macgrath, pointed out that undoubted acromegaly may occur (as in his case) along with gigantism, yet there were those who held fast to the belief that acromegaly is a disease in itself and the fact that it could occur in persons of extreme stature was of no significance. As late as 1897, Sternberg, starting from the work of Langer, holds in résumé:

The following groups can be distinguished from a survey of the material at present existing:

I. Normal giants (no deformities, no disease, reach old age)
II. Pathological giants
    a. Acromegalics

b. Multiple tumor-like exostoses
c. Hemihypertrophia facialis
d. Multiple curvatures of the bones (as scoliosis, genu valga, appearances resembling rickets)
e. Gigantism with hereditary syphilis
f. Premature development and rapid growth with tumor of the scrotum in childhood.

"From this it is seen that the expression giant is nothing more than a collective name for very varied conditions which have only in common with each other the more than moderate size of the body."

Thus Sternberg was a dualist who, in addition, denied the constancy of pituitary enlargement. With him were others, e.g., Marie (1896), who maintained:

> We see rickets, hereditary syphilis, myxœdema, etc.; why is it not the same for "giants"? For me that is purely and simply a generic term without precise significance and connoting two different states, the one, gigantism vera, consisting, as I have already said, of a simple exaggeration of physiological processes, the other (symptomatic gigantism) nothing but the manifestation of a preexistent infection (acromegaly, hereditary syphilis, etc.).

The self-same idea had in fact been brought out by Guinon (1889) who says: "not only are the two states absolutely different but contrary to gigantism which is nothing but exaggeration of a normal process, acromegaly is a true disease."

The first formal statement that gigantism is acromegaly in early life appears to have been made by Tamburini in 1894, although Mossolongo, in 1895, claimed that he had enunciated the same theory in a clinical lecture in the spring of 1892. (That however is a fine point.) Brissaud and Miege state this very well in 1895, saying:

> Gigantism and acromegaly are one and the same disease or at least, it is a matter of two maladies nosologically different, the same cause being provocative of the one and the other and in directing the evolution . . . acromegaly is gigantism in an adult, gigantism is acromegaly of the adolescent.

As to the cause, Hutchinson, in 1895, uses the term "Hyperfunction of the hypophysis." In 1900, after a comprehensive discussion he says:

> We think therefore that we would be justified in claiming that the twin diseases, acromegaly and gigantism, are the result of a normal or glandular hypertrophy of the entire pituitary body, beginning in and chiefly affecting the anterior lobe, but even extending to and affecting the posterior or nervous lobe . . . To sum up we would respectfully submit the following conclusions:
>
> 1. That the pituitary body is still functional.
>
> 2. That disturbances in its metabolism are the principal factors in both acromegaly and gigantism, the difference between the results being simply due to the stage of individual development at which the disturbance of function begins.

In this period it is interesting to note Sternberg's (1897) résumé of 34 cases of gigantism, 14 of which (42 per cent) showed acromegalic alterations, and Hutchinson's statistics (1900), viz., that of 48 autopsies on acromegalics 44 showed pituitary hypertrophy. Similarly Dana (1893) stated of 12 autopsies reviewed in the literature that 10 showed pituitary hypertrophy.

Concerning a detail of the present status of anterior lobe hyperfunction, I will quote from Cushing (1927):

Since both acromegaly and gigantism are invariably associated with a chromophile adenoma (our present series of 65 verified cases having all shown an excess of this type of cell) and since a tendency to adenoma formation, whether chromophobe or chromophile, characterizes adult life, giants or acromegalic giants are much more rare than are cases of acromegaly. In other words, a pre-adolescent chromophile adenoma resulting in hyperpituitarism is about as rare as a pre-adolescent chromophobe adenoma resulting in hypopituitarism. Pituitary nanism though a common malady, is usually due to lesions of other parts.

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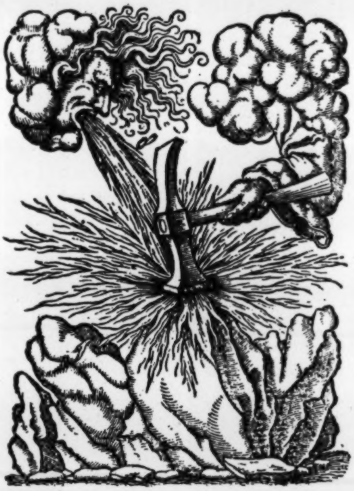

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In the Catalogue of the Royal College of Surgeons Library certain of these books are catalogued under a different form of the author's name.

The following abbreviations have been used in the references in this list: BMC = British Museum Catalogue XV century books; BO = Bibliotheca Osleriana; Campbell = Netherland incunabula; GW = Gesamtkatalog für Wiegendrucke; H = Hain; HC = Hain Copinger; Klebs Pest = List of plague incunabula in Klebs-Droz (Paris) and Klebs-Sudhoff (Munich); O-S = Osler-Scholderer, Incunabula medica; Pr. = Proctor.

Albertus Magnus. De animalibus.

260 l. fol. Venice, Joannes & Gregorius de Gregoriis, 21 May, 1495.

Gothic type. Title (partly in Roman type). MS. rubrics & illuminated initials. G. W. 589.

Alexander Aphrodisaeus. De anima [Edited by Hieronymus Donatus]

91 l. 4°. Brescia, Misunta, Id. (13) Sept. 1495.

Roman type; Greek words. Woodcut initial. G. W. 895.

Argellata. Cirurgia.

131 l. fol. Venice, [anon. press] 12 Sept., 1499.

Gothic type. Title. MS. marginalia. G. W. 2324.

———. The same: another copy.

Title. MS. marginalia.

Aristotle. De animalibus [Interprete Theodoro Gaze]

253 l. fol. Venice, Colonia & Manthen, 1476.

Roman type. MS. index & pagination. G. W. 2350.

———. De animalibus [Interprete Theodoro Gaza]

150 l. fol. n.p., n.d. [Venice, Bevilacqua, *c.* 1495]

Roman type. Title. MS. illuminated initials. G. W. 2352. (No British copy registered.)

——— Organon.

234 l. fol. Venice, Aldus Manut., Kal. (1) Nov. 1495 [Volume I]

Greek type, Roman passages. Greek MS. notes, ascribed to Andreas Joannes Lascaris. G. W. 2334 (i)

———. Physionomia, Secreta secretorum (French.)

4 l. sig. A. 1 col. 33 lines. sm. 4°. n.p., n.d. [? Lyons, *c.* 1490]

Gothic type. Not in G. W. Apparently undescribed. *Bound after* Scotus (q.v.)

Arnaldus de Villanova (*also:* Valascus de Tarenta and Petrus de Abano) De venenis.

27 l. 4°. Milan, Christoph. Valdafer, 1475.

Gothic type. G. W. 2524. Klebs Pest 124. *Bound before* MS. Regimen sanit. Salern. cum comment. Arnaldi.

Articella [Edited by Franciscus Argilagnes]

214 l. fol. Venice, B. de Tortis, 20 Aug. 1487.

Gothic type. Lacks leaves 97 and 100. G. W. 2680.

Avenzoar. Theisir & Antidotarium [Translated from the version of Jacobus Hebraeus, by Paravicius]

44 l. fol. [Venice, J. & G. de Gregoriis, 4 Jan. 1490/1]

Gothic type. Title. MS. marginalia. Lacks whole Averroes & colophon. G. W. 3103.

Avicenna. De animalibus [Latinised by Michael Scotus]

54 l. fol. n.p., n.d. [Venice, Gregoriis, *c.* 1500]

Roman type. Title. Woodcut initials. G. W. 3112.

———. De viribus cordis [Translated by Arnald de Villanova]

13 l. fol. Padua, [Herbort], 6 Nov. 1479.

Gothic type. Sigs. nn and oo of *Avicenna*, Canon. G. W. 3117. O-S. 180.

———. Canon, I and II [Translated by Gerard of Cremona]

120 l. fol. Venice, Dion. Bertochus-Canon I: 6 Nov. 1489; Canon II: n.d.

Gothic type. MS. initials. G. W. 3121 (1 & 2).

Bartolomeo de Montagnana. Consilia medica cum additionibus.

332 l. 2 cols. 60 and 61 lines. fol. n.p., n.d. [Padua, Canozius, 1476?.]

Gothic type. No signatures. MS. initials, foliation & marginalia. O-S 132^{A}. (354 leaves).

———. The same.

396 l. 2 cols. 66 lines. fol. n.p. [Padua], P. Maufer, 4 May, 1476.

Gothic type. Title formed by heading mounted in modern leaf. MS. initials, illuminated, & marginalia. O-S. 111.

Bartolomeo [Sacchi] de Platina. De obsoniis et honesta voluptate.

95 l. 4°. Bologna, J. A. Benedict., 10 May, 1499.

Roman type, Gothic title & Greek words. MS. marginalia. BMC. VI. 752 (11 May).

Bernard de Gordon. De urinis et pulsibus.

24 l. fol. Ferrara, Andreas [Belfortis] 4 March, 1487.

Gothic type. Kloss bookplate. G. W. 4087.

———. Lilium medicinae.

184 l. fol. Ferrara, Andreas [Belfortis] 18 May, 1486.

Gothic type. MS. initials, rubrics & marginalia. *Bound with* Guilelmus De Saliceto (q.v.) in original boards & pigskin half-binding. G. W. 4081. BMC VI 604.

———. Lilium med. in French. [Fleur de lys en medecine.]

244 l. 4°. Lyons, [anon.], 31 Aug., 1495.

Gothic type. MS. initials. Lacks leaves a. 1, g. 1, and v. 2. G. W. 4085. Pr. 8702.

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BEROALDUS (Philippus). Declamatio an orator sit philosopho et medico anteponendus.

40 l. 4°. Bologna, Benedictus Hectoris, Id. (13) Dec., 1497.

Roman type, Greek passages. Title to each treatise. Printer's device at end. From Heber library. G. W. 4126.

BRUNSCHWIG (Hieronymus). Buch der Cirrurgia.

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CELSUS. De medicina.

194 l. fol. Florence, Nicolaus [Laurentii] 1478

Roman type. HC. 4835. O-S. 147. BMC. VI 627.

CERMISONUS (Antonius). Consilia [*Also:* Gentilis de Fulgineo and Franciscus Caballus]

94 l. fol. Venice [Locatellus for O. Scotus, *c.* 1496]

Gothic type. Title. Woodcut initials. Device of Scotus at end. HC. 4884. BMC. v. 453.

DINUS DE GARBO. Expositio super Avicenn. canon. IV. fen. 3, 4, 5. [Also: Gentilis de Fulgineo and Dinus *de ponderibus* &c.]

158 l. fol. Venice, Bonetus Locatellus for Octavianus Scotus, (24 Dec.) 9 Kal. Jan., 1496.

Gothic type. Title. Woodcut initials. Device of Scotus at end. BMC. v. 446 [1495].

FILELFO (Francesco). Orationes cum opusculis (Latin & Italian).

224 l. 4°. n.p., n.d. [Milan, Pachel & Scinzenzeler, *c.* 1484]

Roman & Greek type. BMC. VI. 751.

GALEN. Therapeutica in Greek.

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Greek type, black & red. Woodcut borders & initials. Device at end. MS. marginalia. BMC. v. 581.

GRASSI (Benevenuto). De oculis.

36 l. 4°. [Ferrara], Severin. Ferr. [147]4

Roman type. MS. marginalia. Heber's copy, with his ms. notes. BMC. VI. 608; O-S. 57.

GUILELMUS DE SALICETO. Summa & Cyrurgia.

179 l. fol. Venice, [Saracenus] 4 June, 1489.

Gothic type. MS. illuminated initials, rubrics & marginalia. In contemporary binding with BERNARD DE GORDON, Ferrara, 1486 (q.v.) BMC. v. 414.

GUY DE CHAULIAC. Cyrurgia parva [*Also:* Abulcasis, Jesu Haly, Canamusali].

68 l. fol. Venice, Bon. Locatellus for Oct. Scotus 6 Kal. Feb. (27 Jan) 1500/1.

Gothic type. Title. New foliation & signatures from beginning of Jesu Haly. Woodcut initials, & illustrations to Abulcasis. Device of Scotus at end. BMC. v. 453.

HERBARIUS LATINUS [Aggregator practicus de simplicibus]

171 l. 4°. n.p., n.d. (Lacks dated title) [Mainz, Schöffer 1484].

Gothic type. 150 woodcuts, some colored. MS. illuminated initial, & marginalia. Kloss' bookplate Dated in MS. 1481. BMC. I, 39.

HERBARIUS GERMANICE [Gart der Gesund heit]

358 l. fol. Mainz [Schöffer] 28 Mar. 1485.

Gothic type. Woodcuts, coloured. Device at end. MS. initials & rubrics, & ms. addition to cap. cv Lacks leaf 8. Kloss' bookplate. Stamped binding (rebacked) dated 1549. H. 8948. BMC. I. 35.

ISIDORE OF SEVILLE. Etymologiarum libri.

100 l. fol. Venice, Locatellus for O. Scotus, 3 Id. (11) Dec. 1493.

Gothic type, Greek passages. Title. Woodcut initials & illustrations. Device of Scotus at end. BMC. v. 442.

JACOPO DA FORLI. Expositio super libros Tegni Galeni cum questionibus extravagantibus [Edited by Hieronymus Surianus]

144 l. 2 cols. 75 lines. fol. Venice, Locatellus for O. Scotus, Kal. (1) Mar. 1495/6.

Gothic type. Title. Device of Scotus, l. 103*b*. Woodcut initials. MS. notes. Berlin 4187, Leipzig 3383

JOHN OF GADDESDEN. Rosa anglica [Edited by Nicolaus Sçyllatius]

177 l. fol. Pavia [Leonard Gerla for] J. A. Biretta, 24 Jan., 1492.

Gothic type. Title. Device of Biretta at end. MS. notes. HC. 1108. BO 7447.

KETHAM (Joannes de). Fasciculus medicinae [*Also:* Petrus de Tussignano *de peste*, and Mundinus *Anatomia*]

40 l. fol. Venice, Gregoriis, 15 Oct. 1495.

Gothic & Roman type. 10 full-page woodcuts, & woodcut initials. MS. marginalia. BMC. v. 347. (Second Latin edition).

MANFRED. Libro del perchè.

109 l. fol. Bologna, Rugerius and Bertochus, 1 July, 1474.

Roman type. MS. marginalia. Lacks last leaf of table of chapters, supplied by a blank leaf. BMC. VI 805; O-S. 59.

MANLIIS (J. J. de) de Boscho. Luminare majus.

88 l. fol. Pavia, Carcan, 9 April, 1494.

Gothic type. Title. MS. notes. Proctor 7065 (Bodleian).

MATHEOLUS PERUSINUS. De memoria.

5 l. 4°. n.p., n.d. [Kuilenburg, Veldener, *c.* 1484].

Gothic type. Bound before ROELANS (q.v.). Proctor 9300 (Bodleian).

MESUE. Opera [*Also:* Petrus Aban. *additio in libr. Mesue*]

235 l. fol. n.p. [Florence, anon.] 5. Id. (9) June, 1471.

Roman type. BMC. VI 615; O-S. 10.

MESUE. Opera, cum additionibus.

372 l. fol. Venice, Gregoriis, 14 Oct., 1497.

Gothic type. Title. Woodcut initials, & device at end. MS. notes. BMC. v. 350; BO. 7462.

NICOLAUS SALERNITANUS. Antidotarium [*Also: Quid pro quo,* and *Sinonima*]

69 l. 4°. Venice, Jenson, 1471.

Roman type. MS. initials & marginalia. BMC. v. 170; O-S. 8.

Occam. Summule in libr. physicorum Aristotelis.

48 l. fol. Bologna, Benedictus Hector., Id. (13) Dec., 1494.

Gothic type; verses in Roman type at end. Title. Woodcut device at end. BMC. vi. 842.

Petrus de Abano. Conciliator differentiarum philosophorum et medicorum, *and* de venenis [*Also:* Petrus de Carariis de monte silice, *de terminatione venenorum*]

278 l. fol. Venice, Gabriel de Pietro for Thomas de Treviso, 1476.

Gothic type (first heading in red): MS. illuminated initials, & marginalia. BMC. v. 201; O-S. 104.

Pliny. Naturale historia tradocta in lingua Fiorentina per Christophoro Landino.

293 l. fol. Venice, Philip. [Petri] 1481.

Gothic type. MS. marginalia. BMC. v. 223.

Regimen Sanitatis Salerni cum expositione Arnaldi.

64 l. 4°. "Argen. (Strasburg), S. Thomas Cantuar. (29 Dec.) 1491" [Venice, Benalius, *c.* 1500] (Reprint from Strasburg edit., with same imprint)

Gothic type. Title. MS. marginalia. BMC. v. 379.

Rhazes et alii. Opuscula medica.

218 l. fol. Milan, Pachel & Scinzcenceller, 16 Kal. Mar. (14 Feb.) 1481.

Gothic type. MS. illuminated initials, & rubrics. BMC. vi. 749.

Rhazes et Petrus de Tussignano. Liber ix ad Almansorem, etc.

136 l. fol. Venice, B. Stagninus de Tridino, 30 March, 1483.

Gothic type. MS. rubrics & headings. MS. notes; one in English dated 1588. BMC. v. 364.

Roelans. De aegritudine infantium.

118 l. 4°. n.p., n.d. [Louvain, or Kuilenburg, Veldener 1485].

Gothic type. MS. notes. The leaves are numbered from 78 to 194; all before 78 unknown. *Bound between* Matheolus (q.v.) *and* Hermann a Neuenar, Cologne, 1529. Campbell 1675. Sudhoff (facsimile) *Erstling. d. Paediat. Lit.*

Schellig (Conrad). In pustulas—malum de Francia.

10 l. 4°. n.p., n.d. [Heidelberg, Miesch *c.* 1495].

Gothic type. Title. MS. marginalia. BMC. iii. 668.

Scotus (Michael). Liber physionomiae.

38 l. 4°. n.p., n.d. [Lyons, Balsarin & Neumeister, *c.* 1490.]

Gothic type. Title. Device at end. MS. notes. Lacks leaves b. 3 & b. 6. *Bound before* Aristotle Physionomia (q.v.) Reichling 1864.

Silvaticus (Mattheus). Liber pandectarum medicinae.

349 l. fol. n.p. [Bologna], Vurster, 1474.

Roman type. Stamped illumination, MS. initials & marginalia. BMC. vi. 803; O-S. 71 (Modena).

Steinhöwel (Heinrich). Büchlein der pestilenz.

19 l. fol. Ulm, Conrad Dunckmüt, n.d. [*c.* 1482].

Gothic type. Woodcut initial. MS. notes. Kloss' bookplate. Klebs Pest 105. H. 15059. BMC. ii. 533.

Theobaldus. Physiologus.

20 l. 1 col. 2 types (17 & 39 lines). 4°. n.p., n.d. [Cologne, Quentell].

Gothic type. Title. MS. rubrics. Kloss bookplate. BMC. i. 273.

Ugo [Benzi] da Siena. Super aphorismos Hippocratis, etc.

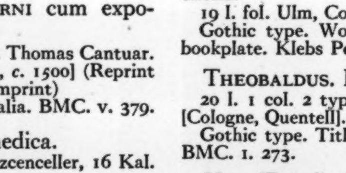
160 l. fol. Venice, Locatellus for O. Scotus, 10 Kal. Jun. (23 May) 1498.

Gothic & Roman type. Title. Woodcut initials. Device of Scotus at end. In original boards & stamped half-binding with Ugo, *Super* 4 *fen* 1. *Avicenn.*, (Venice 1502). BMC. v. 450; HC 9012.

Zeno (Antonius) De embryone.

58 l. 4°. Venice, Dionysius [Bertochus], 1 Jan. 1491/2.

Gothic type. Signatures a-g of Zeno *de natura hominis*, BMC. v. 488. *Bound after:* Galeottus Martius *de homine*, Turin, 1517; Ficinus, *de epidimiae morbo*, Augsburg, 1518; Hieronymus Lucensis, *de animae immortalitate*, Milan, 1518.



[From Nüremberg Chronicle, 1493.

[From Schurigio: Lithologia Historico-Medica, Dresden, 1744.]

EDITORIAL

PERSONAL RECOLLECTIONS OF FLORENCE NIGHTINGALE

FLORENCE NIGHTINGALE was born on May 12, 1820, and died August 13, 1910. There are thus at this date, 1931, not many persons living who knew her personally before the last years when her memory had failed and her mind was clouded. I had the great honor and pleasure of having three interviews with her, one in 1897, two in 1899, when I was in London. It has been suggested that possibly these personal reminiscences of a great woman, slight though they are, yet intimate touches, might be of value.

I had written a book on the care of children, and being a nurse, wished to submit it to the highest authority in our profession. I sent it to Miss Nightingale, and asked if I might see her. She was then living in the house her father had bought for her at No. 10 South St., off Park Lane, Hyde Park. I was conducted to her bedroom, a large cheerful room in the front of the house, in the third story.

She was in bed propped up with pillows, her head swathed in a wonderful arrangement of net and lace, with a small white zephyr shawl thrown over all. She had always been tall and thin, but through many years of invalidism, and confinement to her room in bed she had grown stout and gave the impression of a large woman. Her eyes were bright and still keen, her smile kindly, her face lit up with interest as she talked.

My little book had been laid on the table beside her. After a few moments, she took it up and said: "I am so glad your book has not a skeleton in front." I explained that it was rather for mothers than for the profession. A little later she said: "We had an excellent matron at St. Thomas' for years. She was a mother to the nurses. The one we have now is just a book with a skeleton in front."

She asked many questions about nursing work in the United States. What we did to keep our graduate nurses in touch with the hospital that was their *Alma Mater* was one of them, and listened with interest to the answers. I had bought one of her photographs published by the London Stereoscopic Company, and I asked her to sign it. She twisted it about in her fingers, and at last said: "This thing was taken by command of the Queen when I returned from the Crimea. If I write on it, people will think I gave it to you." Respecting her evident unwillingness, I took it back. I had my birthday book, which after a time I produced, and said:

"Miss Nightingale, if you will not write on the photograph, will you not write in my birthday book?" The keen eyes gave one flash of humor. "You monkey!" she exclaimed, and wrote—my most valued autograph.

She had beautiful hands, not small, but with long tapering fingers: capable hands, useful hands, that had lifted many a burden.

She rang a bell beside her bed and ordered tea without which no interview in England can be perfectly conducted. When it came, to her great distress, I could not eat. She asked: "Won't you have an egg?" I replied: "Oh Miss Nightingale, I am like the children, too 'cited' to eat."

Before I left, she asked me if I minded carrying a parcel. Those were the days when no gentlewoman dreamed of carrying a parcel in London. I said I thought a nurse should have a soul above minding such trifles. She rang the bell again, and the maid appeared with a bunch of lovely flowers evidently fresh from the country, which she gave me.

In the summer of 1899, as an honorary member of the Canadian National Council of Women, I was in London at the meeting of the International Council of Women. Miss Nightingale had consented to receive three of the nurses who were present. Lady Aberdeen, the president, asked me if I would be one of them. I replied that I had already had the great pleasure and privilege of an interview with Miss Nightingale, and suggested that Mrs. MacNeil, a nurse from New Zealand, who had come 12,000 miles to the meetings should have this honor. Lady Aberdeen said she was too busy to make a change in the arrangements; but proposed, as my name had been submitted to Miss Nightingale, that I go to her home and see what could be done. I was shown into a painfully neat library, where it was evident no one lived or disturbed its order. The confidential maid went up and down stairs with messages, and finally said: "Miss Nightingale will receive Mrs. MacNeil on Tuesday, and she would like you to come at four on Thursday." Needless to say, I walked away as on air, and kept the appointment punctually.

I was received with the utmost kindness. When I was leaving, I said I was sailing for home the next week. She said rather wistfully: "Then I shall not see you again." Something in her manner emboldened me to reply: "Miss Nightingale, do you mean you would let me come to see you again?" "I should be very glad," she returned. The next week I came up from Brighton and had a final interview with her. Her mind was perfectly clear, but her memory a little treacherous. She asked the same question more than once; but the question was concise and to the point.

I had several letters from her, in her beautiful clear handwriting, one of which I gave to the nurses' library at the Massachusetts General Hospital, where I was trained. Her biography by Sir Edward Cook gives the fullest details of her life; but no printed words or portrait can reproduce her charm of manner, her sweet voice, the sincerity that shone in her eyes, and the kindness that radiated from her face.

Elisabeth Robinson Scovil.

ERRATUM

At the beginning of page 490 of Volume 3, in the article on Erasmus Darwin, his 3 children are incorrectly described. The eldest son Charles died at the age of 20 of a dissection wound, having already showed great promise, as may be seen in his book, "Experiments establishing a criterion between mucaginous and purulent matter," Lichfield, 1780, published posthumously by his father with a touching memoir of his dead son. It was the second son, Erasmus, who committed suicide, and Robert, the father of Charles, was the third son.

EDWARD B. KRUMBHAAR

BOOK REVIEWS

The Great Physician, a Short Life of Sir Willam Osler. By Edith Gittings Reid. New York, Oxford Univ. Press, 1931.

It might seem that the copious "Life of Sir William Osler" by Harvey Cushing had covered the ground to such an extent that further material on the subject did not exist and that such a book as the present would be uncalled for, especially, as the Author states in her Preface, because there is also a vast amount of biographic matter in the volume of "Tributes" on the occasion of his seventieth birthday, and in the "Memorial" collection published after Osler's death by Dr. Maude Abbott. That there is room for such a book as the present is amply proved by the work itself. The writer knew Osler well and the personal touch adds greatly to the value of her book. Dr. Cushing's work is so thorough that any subsequent biography must necessarily reproduce some of the material contained in its two large volumes. On the other hand Osler was a man with such marked and various characteristics that his life presents many different viewpoints and hence lends itself to different angles of approach. The present writer is particularly felicitous in her presentation of his domestic relationships with his wife and boy, in the material she presents illuminating his tenderness towards children, and his deep feeling for the sick or those in anyway in sorrow or distress. While no biography can replace that by Cushing this book will serve as a worthy supplement to the authorized "Life," and will be welcomed as a companion to it on our shelves. It contains some notable illustrations, especially a portrait of Revere as a fisherman, taken in the last year of his life, and a view of the Osler Library at McGill, which add to its value.

Grace Revere Osler. A Brief Memoir. By Arnold Muirhead. Printed for private circulation at the Oxford Univ. Press. 1931.

The subject of this little biography was a direct descendant on the paternal side from the famous Paul Revere, and on the maternal side from Captain John Linzee of the British Navy, whose battleship, *The Falcon*, bombarded the fortifications erected by the Colonials on Bunker Hill, and it is interesting to reflect that fate should have united her to one who did so much to promote goodwill between the two countries, and given her the will and ability to aid him in the task. It is a commonplace that the wives of great men are frequently overshadowed by their husbands' glory, but there have been notable exceptions and this is one of them. Lady Osler was not only a most charming woman with remarkable social gifts but she had also an unusually keen and alert mind and her wide reading and many contacts with people, made her a most interesting and delightful person to meet. As is well known, from the time of their marriage in 1892, throughout the years they passed in Baltimore and later in Oxford, the Oslers' home was an open house not only for their many personal friends but also for the innumerable visitors, especially medical students and physicians who looked up to Osler as their guide, philosopher and friend, and not only sought advice or counsel, but also prized the opportunity of personal contact with such a wonderful personality. The secret as to how Osler could get through the enormous amount of work which he accomplished is open to those who knew his wife and is further revealed in this sketch of her life: "She it was whose tact and management saved him from bores and who ensured him that peace and immunity which enabled him to accomplish in twenty-four hours an amount of work which was always the marvel and envy of his colleagues." Lady Osler did more than this. Her charm supplemented that of her husband and she was able to fit in so that when he was necessarily obliged to absent himself she carried on and his loss was less noticeable to the visitor. The wholehearted participation in all his studies and pursuits added to his zest for them. We believe that in years to come Cushing's "Life of Osler" will be especially valued for its picture of the household of the Oslers, particularly that part of it which deals with the Oxford period and throughout the War, and much of its interest will be due to the great part which Lady Osler played in it. Both of them anticipated the terrible catastrophe which befell them but they met it with the same determined courage and continued their service to others as generously and graciously as before their loss. And after he had been taken, Lady Osler maintained the traditions of 13 Norham Gardens so that until her own passing it remained a rare center of hospitality and intellectual resort. After Sir William's death Lady Osler chose as his biographer his and her warm friend, Harvey Cushing, and much of the well won success of that great biography was due to the unstinted help which she gave in its preparation. Another great task was the preparation and publication of the catalogue of his library before sending its contents to McGill University to which they had been left. While Dr. Francis labored at its compilation Lady Osler gave her aid and sought to make this wonderful gift as perfect as Sir William would have wished it.

Everything was in readiness to move the Library and the Catalogue practically completed when Lady Osler passed away, dying among the surroundings in which she had passed so many useful and happy years. This is one of the most beautiful tributes we have ever read worthy in every way of the perfect character in whose memory it was written.

FRANCIS R. PACKARD.

THE NOTE-BOOK OF EDWARD JENNER in the Possession of the Royal College of Physicians of London with an introduction on Jenner's work as a naturalist. By F. Dawtrey Drewitt, M.D. (Oxon), F.R.C.P., formerly on the Committee of the British Ornithologists' Union, and on the Council of the Zoological Society of London. London, Oxford Univ. Press, Humphrey Milford, 1931, vii + 49 pp.

This little book should not escape the notice of the historian of science, for it makes available a bit of "Jenneriana" of considerable interest. To quote from the Preface, signed by A.C.:

"This Manuscript Note-Book of Dr. Edward Jenner, in his own handwriting, and now printed for the first time, came into the possession of the Royal College of Physicians on February 2nd, 1888. It was presented to the College by Dr. Jeffery Allen Marston, as the following extract from the 'Annals' of the College, vol. xxxv, p. 164, testifies: 'The President presented to the College, in the name of Dr. Jeffery Allen Marston, a manuscript Journal of the late Dr. Jenner, and the special thanks of the College were voted to Dr. Marston for his interesting present.'

"The manuscript consists of a Note-Book of 80 leaves, some of which are blank. It is a small quarto volume measuring 814 × 6⅝ inches, and is bound in boards with a narrow leather back and vellum corner-tips . . .

"The Note-Book, which covers the period from 1787 to 1806, records various observations made by Jenner concerning the habits of the Cuckoo, the presence of Hydatids in the bodies of various animals, and concerning the Distemper in Dogs. The pages devoted to the observations on the habits of the Cuckoo, although they cover a smaller space than the rest of the manuscript, are by far the most important, for they comprise the original notes made by Jenner for his paper communicated to the Royal Society, wherein his observations on this subject were first given to the world, and they also show Jenner as a naturalist. Jenner's work as a naturalist has been admirably and fully dealt with by Dr. Drewitt, who has written the chapter concerning this side of Jenner's career.

"The greater part of the rest of the manuscript deals with Jenner's observations on Hydatids in various organs of different animals examined by him. In these observations, which show unwearied patience and industry, Jenner early came to the conclusion that Tubercles were formed by Hydatids, and throughout his experimental work in this field he closely adheres to this view of the origin of Tuberculosis.

"The closing pages of the manuscript record his observations in connexion with Distemper in Dogs. He made many autopsies upon dogs who had died of this disease, but beyond establishing the fact that the lungs were almost always the seat of extensive inflammation, Jenner does not come to any definite conclusion concerning the disease . . ."

The introduction by Dr. Drewitt helps the average reader to appreciate the observations Jenner has made in the notebook, and is very fittingly printed in the same volume with the notebook, although it could well stand alone.

The notebook itself is of more interest than either the one belonging to Dr. Crummer published in the July, 1929 ANNALS OF MEDICAL HISTORY or the one belonging to Dr. Hellman published in the July, 1931 issue of the same journal. It shows Jenner at work observing data and developing his ideas on the three important subjects stated in the Preface. The other notebooks are more desultory. As I have hinted before, the Crummer manuscript is merely a compilation from scraps of paper and from other notebooks, including Dr. Hellman's, and is not even in Jenner's handwriting. It, consequently, cannot even pretend to develop Jenner's thoughts consecutively. On the contrary, its value lies in showing the vast breadth of Jenner's interests over a period which begins about the same time as the notebook under review and extends to at least 1822. It does not discuss any of the three previously mentioned subjects. Dr. Hellman's notebook deals with the years 1810–1812, and mentions many subjects including the hydatid and the distemper in dogs but not the habits of cuckoos. Both Dr. Crummer's and Dr. Hellman's notebooks somewhat portray Jenner, the man, which the other notebook does not. It is interesting to remark that the notebook of the Royal College of Physicians does not mention either smallpox or vaccination, which are very much stressed in the two other books, as they are in Jenner's whole life.

Not one of the three notebooks in question can be taken as exemplifying Jenner's manner of thinking or his method of recording observations, but they must be considered together, and the one under review is a very welcome addition.

C. DORIS HELLMAN.

THE INFANT WELFARE MOVEMENT IN THE EIGHTEENTH CENTURY. By Ernest Caulfield. New York, Paul B. Hoeber, 1931.

This interesting work of Dr. Ernest Caulfield is refreshing as well as illuminating.

It will prove of particular interest to present-day welfare workers who are inclined to regard the great efforts for the welfare of infants and children as an activity originating with the present generation.

Dr. Caulfield traces a distinct infant welfare movement in England especially in London, beginning in the first half of the 18th century, gaining in impetus as the 19th century is reached.

At times the movement wanes and is almost lost sight of; nevertheless, the light continues to burn in the minds and hearts of early pediatrists and philanthropists.

Two outstanding accomplishments appear: the organization of the "Foundling Hospital" in London, and later the establishment of the first "Dispensary for the Children of the Poor" which Dr. Caulfield regards as the first successful attempt to deal with the infant poor on a large scale.

Perhaps the greatest contribution of the Eighteenth Century is the birth of the idea that the welfare of the child is the problem and the duty of the people; and the right of the child for a chance to live.

With the establishment of these claims the whole story of child welfare is inevitable.

The description of the life and work of the men who are responsible for the early recognition of this claim of the child, makes delightful reading for the student of Social History, as well as for physicians, giving an enlightening picture of the times, social and medical.

W. N. BRADLEY.

THE HISTORY OF PAEDIATRICS. The Progress of the Study of the Diseases of Children up to the End of the XVIIIth Century. By George Frederic Still, M.A., M.D. (Cantab.), Hon. Ld. (Edin.), F.R.C.P. (Lord). Prof. of Diseases of Children, King's College, Lond., etc. N. Y., Oxford Univ. Press, 1931.

This very thorough and most delightful work grew out of the Author's Fitzpatrick Lectures on Medical History, which he delivered at the Royal College of Physicians of London a few years ago. In the preface Dr. Still very gracefully refers to Dr. Ruhräh's "Pediatrics of the Past" as a "masterly and delightful" anthology of the subject, and half apologizes for writing a book of much the same kind. His readers may be thankful that he was not discouraged but kept on with his task, because although concerned with the same subject and written on somewhat similar lines, the two books really supplement each other and offer many very different angles in their point of view. Adopting the biographical method Dr. Still begins at the beginning with Hippocrates and continues his history through succeeding generations down to Jenner. All the outstanding contributions to pediatrics are considered in chronological sequence. The biographic sketches of the authors of various pediatric writings are notable for the judgment which Dr. Still displays in proportioning the account of the writer's life to the importance of his achievement. The extracts from the early pediatric literature are excellently chosen. A number of illustrations add much to the book. A noticeable feature is an excellent bibliography in two headings, (1) Inaugural Dissertations, and (2) Minor Writings, pamphlets, etc. A comprehensive index adds greatly to the value of the book, which may be properly regarded not only as a delightful history of the rise and progress of pediatrics, but also as a reference work of the highest importance.

HISTORIC ARTIFICIAL LIMBS. By Vittorio Putti, M.D., Professor of Orthopedic Surgery, Univ. of Bologna, with 11 illus. New York, Paul B. Hoeber, 1930.

This little book of sixty-three pages contains a condensed exposition of the history of artificial limbs with a brief description and illustrations of some of the ancient appliances.

The introduction gives a short but interesting account of the iron hand of Goetz von Berlichingen that replaced his right hand which was lost early in the sixteenth century. The author also illustrates and describes five artificial limbs which he examined in the Museo Stibbert.

Another interesting prosthesis is the hand of "Petit Lorrain" which has gained historic importance because it was described by Ambroise Paré.

It is evident that the makers of these ancient prostheses had definite aim, either functional or esthetic. An effort was made to reduce the weight in several of these iron appliances by numerous fenestrations, some of which are arranged in graceful figures. The author indicates that the construction and use of artificial limbs kept pace with surgical technique. In fact the use of artificial limbs demanded that the surgeon fashion a stump in order that an artificial appliance could be worn. Some of the principles of the modern apparatuses are depicted in these crude and ancient appliances.

This splendid book should appeal to those who are interested in medical history and particularly to surgeons who have occasion to perform amputations and order artificial limbs.

In his conclusion the author discusses the authenticity, probable dates, usefulness and construction of the prostheses described. Vittorio Putti's writings should appeal to all orthopedists and general surgeons.

E. J. KLOPP.

THE CONWAY LETTERS. The Correspondence of Anne, Viscountess Conway, Henry More and their Friends, 1642–1684. By Marjorie Hope Nicolson. New Haven, Yale Univ. Press.

The Kingsley Trust Association Publication Fund established by the Scroll and Key Society of Yale College sponsored this volume of Miss Nicolson's which comes as a delight to those who like to get their information at the source.

Anne Finch came of an old distinguished family and at the early age of nineteen married Edward Conway, later Lord Conway. Certain of the Conways had a penchant for treasuring all papers that came their way and had rooms full of them. Later members of the family, heedless of their future historical value, allowed most to be destroyed but one chestfull remained intact and this was found by Horace Walpole on a visit to Ragley Hall, in Warwickshire, and these finally found their way into the British Museum and the Public Record office.

Anne at the age of twelve had some sort of fever, and this was thought to have been responsible for the severe headaches which plagued her the remainder of her life. What these headaches were is not clear, doubtless migraine, but they may have been due to eye strain, sinus trouble or what not. In spite of her troubles, the brilliant girl devoted herself to the study of languages, philosophy, cabbalism and mathematics at a time when such pursuits were rarely followed by women. She had contacts with many of the prominent men of the time, chief of whom was Henry More, of Cambridge, who directed her studies and came to love her deeply, if platonically. It was a love to last a life time and in the letters can be traced the development of the remarkable person, whose father-in-law once said that she wrote like a man but sealed her letters like a woman.

Osler once said that man was distinguished from the lower animals by his passion for taking medicine. Anne Conway bears this out for she and her husband tried continually but ineffectually to relieve her headaches. Many of the prominent physicians of the time ministered to her, among them William Harvey, Sir Theodore Turquet de Mayerne, Lake and Thomas Ridgely, and Sir Francis Prujean.

Thomas Willis wrote a history of her case, Robert Boyle prepared for her his famous Ens veneris and Francis Mercury van Helmont, the Scholar Gypsy, lived for a time in her house and worked in a specially arranged laboratory. Irregular practitioners had their turn, amongst them Valentine Greatrakes, the Irish "Stroker," generally regarded as a quack of the first water but revealed by the letters as a modest fellow loath to take a fee. He was one of Cromwell's soldiers and marvellous were his reputed cures wrought by laying on of hands. He also professed to cure scrofula by using carrots, as "touching" for the disease was a royal prerogative.

Poor Lady Anne tried everything known in the practice of the day. Harvey sent her to France to have her skull trephined but fortunately she got off with a blood letting. She was dieted in every possible way, sweated, vomited, purged; she took pills, powders and potions; nothing was too expensive or too ridiculous to escape trial. She must have been a delight for the apothecaries. She searched in vain for a "blew powder" of which she had heard, paid a fabulous sum for a "red powder," tried "Plaisters of Red Lead and Sope" to blister her neck, as well as water dropped continually on the head. Twice she was nearly killed with mercury; she used coffee and also tobacco, at that time rightly regarded as drugs. Once she tried opium, a new remedy in those days but one to which More objected.

Her brother John Finch, afterwards Sir John, and Thomas Baines, who was also made a baronet, were Cambridge students of More's, physicians and great friends throughout their entire lives. In their letters we get glimpses of other lands and peoples, of great interest both medically and historically. Dr. Archibald Malloch has written a charming account of Finch and Baines which should be read in this connection.

An anonymous correspondent gives one of the best contemporary accounts of the great fire. The great plague is not featured as the Conways were not in London at that time. Many of the letters are long and tedious, full of philosophy and burdened with religious discussion. A couple of years before her death Lady Anne studied the doctrines of the Society of Friends and became a member, dying in that faith. Her leaden coffin bears only the inscription scratched by some one, "Quaker Lady."

The Conway Letters will delight the historically minded of all tastes but they furnish a real treat for those whose predilections run either to medicine, philosophy or religion for there are, as has been shown, many passages concerning doctors, sages and parsons.

Miss Nicolson has done a fine, scholarly piece of work and in her own part has even drifted, perhaps unconsciously, into the style of the century of which she is writing; so that the picture fits the frame into which she has put it. A copy should be in every medical library.

BIOGRAPHISCHES LEXIKON DER HERVORRAGENDEN ÄRZTE ALLER ZEITEN UND VOLKER. Zweite Auflage durchgesehen und ergänzt von Prof. W. Haberling, Prof. F. Hübotter und Prof. H. Vierordt. Haaff-Lysons. Berlin, Urban und Schwarzenberg, 1931, vol. 3.

The first two volumes of this comprehensive biographic dictionary were reviewed in the ANNALS OF MEDICAL HISTORY, N.S.II, 5: 452, 1930, and its nature and scope duly considered. It is based on the standard works of a similar character by Hirsch and Pagel, with the addition of many biographies of medical men who were not included in the previous works, many because they were yet alive when they were compiled. As stated before the sketches of the lives of many of the English and American physicians frequently lack in their proportionate values. The editors have apparently used Atkinson's "Physicians and Surgeons of the United States" as their chief American authority, to the neglect of the much more recent and authoritative work of Kelly and Burrage, "The Dictionary of American Medical Biography." Atkinson's book was published in 1878 and consisted largely of biographic sketches of then living physicians furnished by themselves. Among the Americans who are included we notice a sketch of Dr. W. W. Keen, the Dean of American surgeons, who is fortunately still living. In the bibliographic note to the life of Harvey the late Weir Mitchell is termed "Sir" Weir Mitchell, although so thorough an American had no pretensions to the honor of knighthood. Even the notices of some of the Continental subjects are disproportioned in certain instances. Thus the account of Leeuwenhoek is very short and inadequate for such an important investigator. However, with minor blemishes the work is one of great value and importance and will be a necessity to all writers on medical history.

EGYPT; THE HOME OF THE OCCULT SCIENCES, WITH SPECIAL REFERENCE TO IMHOTEP, THE MYSTERIOUS WISE MAN AND EGYPTIAN GOD OF MEDICINE. By T. Gerald Garry, M.D., M.CH., M.A.O., M.B.E., Senior Physician, Anglo-American Hospital, Cairo. London, John Bale, Sons and Danielsson, Ltd., 1931.

Osler said that Imhotep was "The first figure of a physician to stand out clearly from the mists of antiquity," and Breasted throws out a rather vague suggestion that possibly he was the author of the Edwin Smith Papyrus. Dr. Garry says there is not much doubt that he was a historical personage, "although historical facts in support of his existence are extremely rare," and Hurry in his most interesting book about him states, "Unhappily, nothing is known of his special work as a physician." As one of the proofs of his human existence Dr. Garry mentions the very numerous statuettes of Imhotep preserved in various museums, pointing out that, "All the figures represent Imhotep as young, refined looking, head shaven, and with a scroll of papyrus on his knees, which he is either in the act of reading or unfolding. The costume worn is also human, priestly without any of the usual embellishments of the gods." It seems established that Imhotep, the man, lived in the Third Dynasty and was Wazir to the great king Zoser. He won fame as a philosopher, architect, scribe and physician. Some thousands of years after his death we find him deified and there are many temples, inscriptions and statues dedicated to him. The Greeks adopted him as a medical divinity, assimilating him with Aesculapius. Although he was thus honored there is absolutely nothing left to explain how he acquired fame as a physician. It is probable that he earned his reputation from his power as a magician, because it was in the latter capacity that he is recorded as having rendered great services to the King in connection with a famine in the land. At the Step Pyramid there yet remain traces of his skill as an architect. Garry thinks that the reverence bestowed on him was probably chiefly due to "the rare qualities displayed by him, as Chief Priest, Scribe and Magician . . . He was patron of all who like himself dealt with learning and the secret arts." Extensive excavations are now being carried on at Sakkara, the place where he lived and when the remains of his architectural work have been uncovered, it is hoped that new light may be thrown on this great legendary figure, especially if his tomb is discovered. The earlier part of Dr. Garry's work contains a most interesting though brief discussion of Egyptian magic and medicine, including due reference to the various medical papyri. The recent publication of Professor Breasted's version of the Edwin Smith Papyrus has been a wonderful stimulus to the study of Egyptian medicine. This little book is a most useful guide to some of the essential parts of the subject.

LEANDER VON SUCHTEN, ein Danziger Arzt und Dichter des 16. Jahrhunderts. By Dr. Wilhelm Haberling.

An interesting study of a comparatively unknown biographer of Paracelsus who lived in Danzig in the 16th century. Von Suchten was an alchemist and a poet, and was physician to King Sigismund August of Poland. To the growing number of Paracelsus' students this contribution by Professor Haberling will be welcome.

DAVID RIESMAN.

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